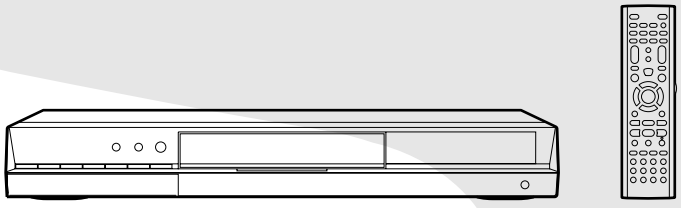
TOSHIBA

FILE NO. 810-200531

SERVICE MANUAL

DVD VIDEO RECORDER

D-R4SU
D-R4SC
D-KR4SU



DOCUMENT CREATED IN JAPAN, Jul., 2005

LASER BEAM CAUTION LABEL

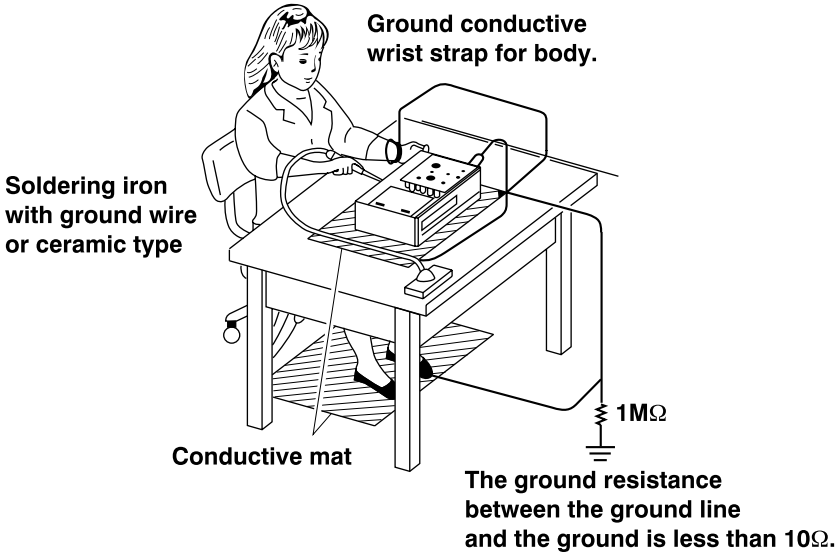
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.



SAFETY NOTICE

SAFETY PRECAUTIONS

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000 Ω per volt or more sensitivity.

Connect a 1500 Ω 10 W resistor, paralleled by a 0.15 μF 150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

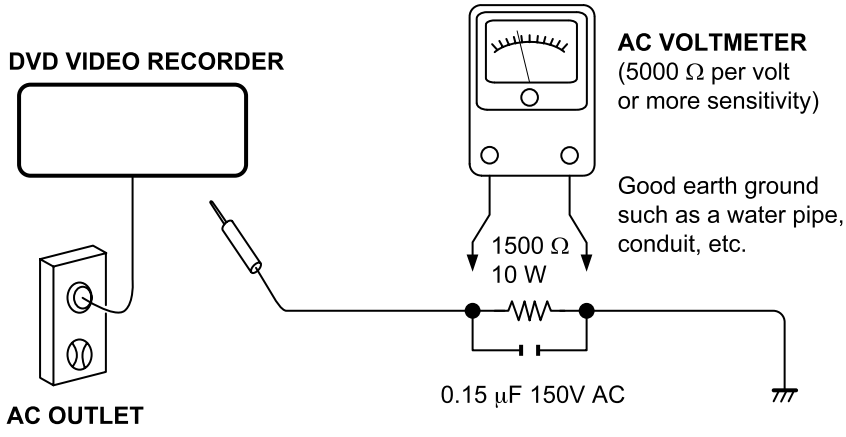
Measure the AC voltage across the 1500 Ω resistor.

The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 V. A reading exceeding 0.3 V indicates that a dangerous potential exists, the fault must be located and corrected.

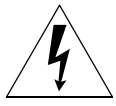
Repeat the above test with the DVD VIDEO RECORDER power plug reversed.

NEVER RETURN A DVD VIDEO RECORDER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.

READING SHOULD NOT EXCEED 0.3V



Test all exposed metal.
Voltmeter Hook-up for Leakage Current Check



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

Please refer to the owner's manual about the contents.

2. LOCATION OF MAIN PARTS

2-1. Location of Main Parts

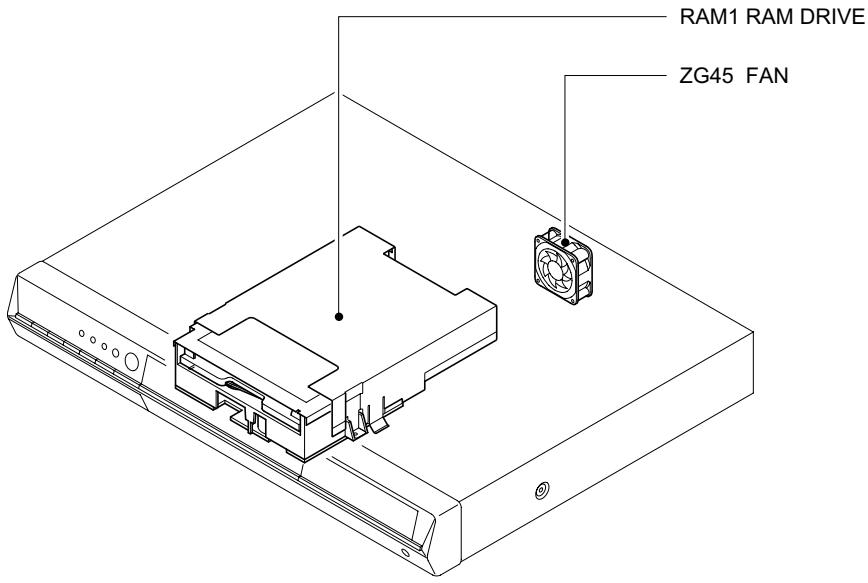


Fig. 1-2-1

2-2. Location of PC Boards

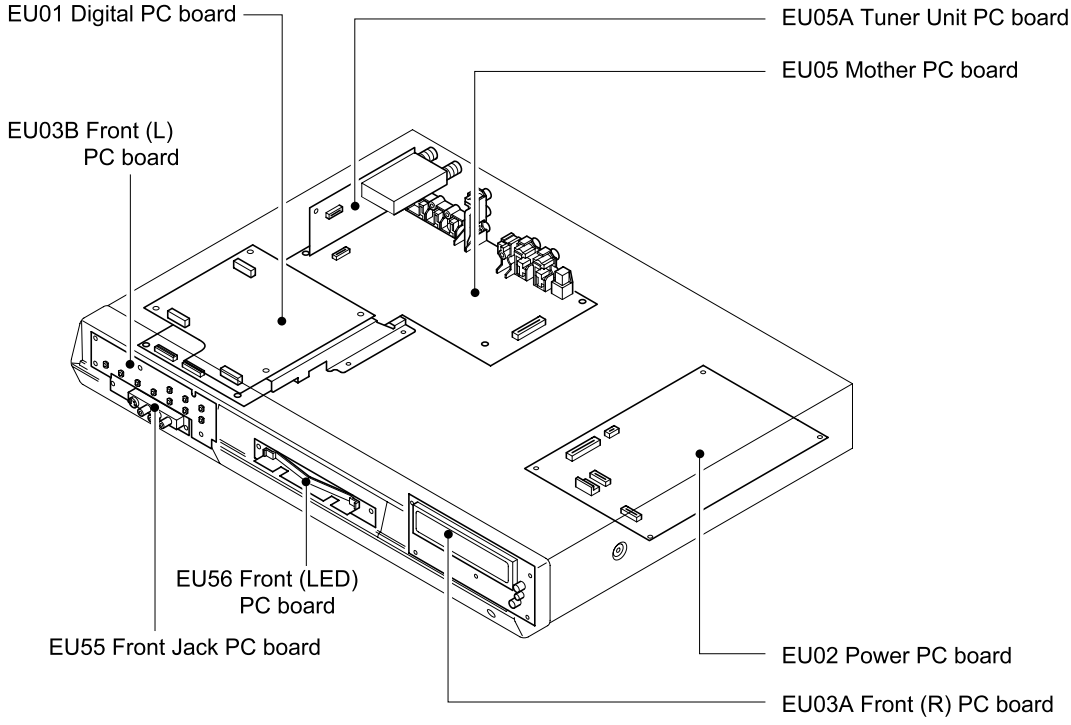


Fig. 1-2-2

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING PART REPLACEMENT

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to ground as required. Many screws are used inside the unit. To prevent the screws from missing or dropping, etc. always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove five screws (1), then remove the top cover (2).

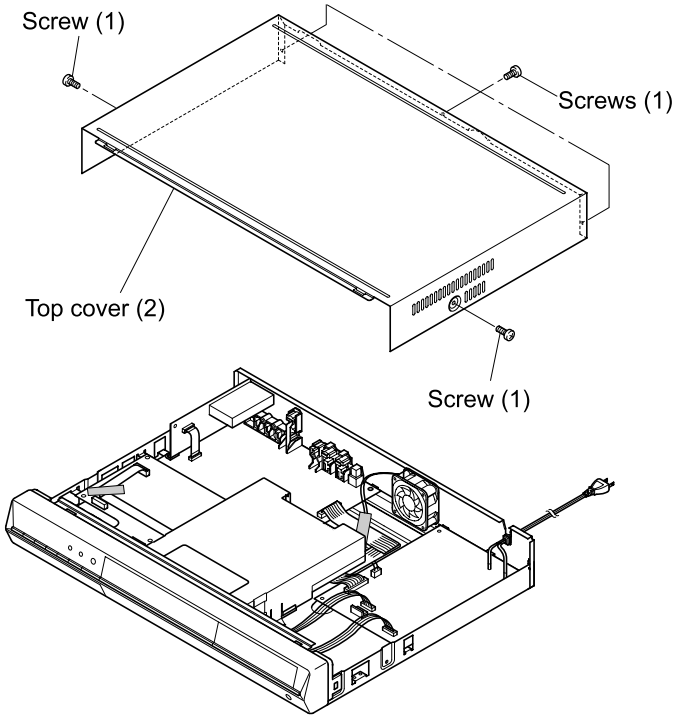


Fig. 2-1-1

1-1-2. Front Panel

1. Remove the top cover. (Refer to item 1-1-1.)
2. Disconnect three connectors (1).
3. Remove one screw (2) and the earth lead.
4. Remove two screws (3) and four claws, then remove the front panel (4).

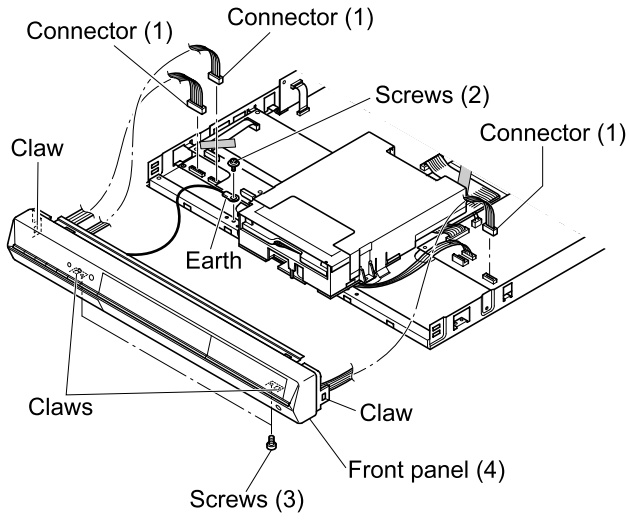


Fig. 2-1-2

1-1-3. RAM Drive

1. Remove the front panel. (Refer to item 1-1-2.)
2. Disconnect the flexible cable (1) and connector (2).
3. Remove three screws (3) and the screw (4), then remove the RAM drive (5).
4. Remove the shield cover (6).

Note:

- After replacing, attach the tape (1) to its original position.

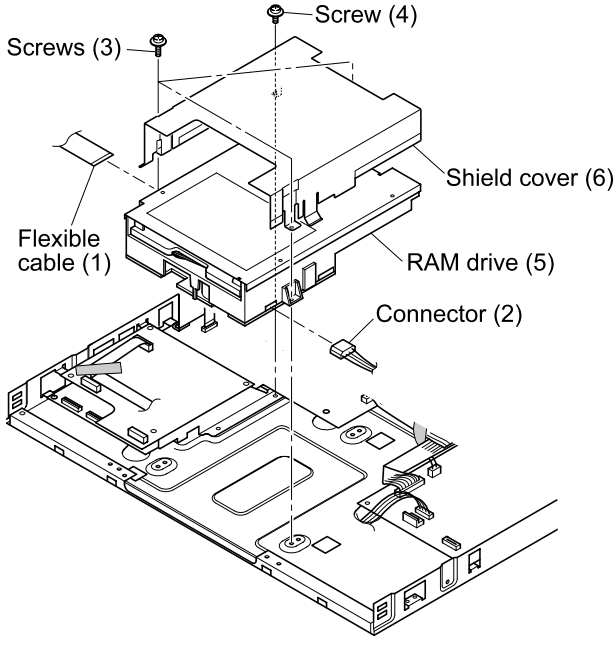


Fig. 2-1-3

1-1-4. Rear Panel

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the screw (1) and seven screws (2).
3. Remove the bush from the rear panel (3).
4. Remove two claws, then remove the rear panel (3).
5. Remove two screws (4), then remove the fan (5).

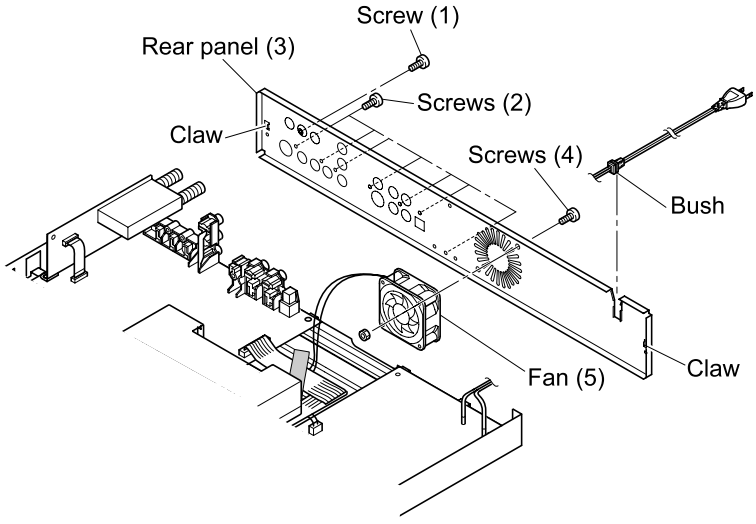


Fig. 2-1-4

1-1-5. Fan

1. Remove the top cover. (Refer to item 1-1-1.)
2. Peel off the tape (1).
3. Disconnnect two connectors (2).
4. Remove two screws (3), then remove the fan (4).

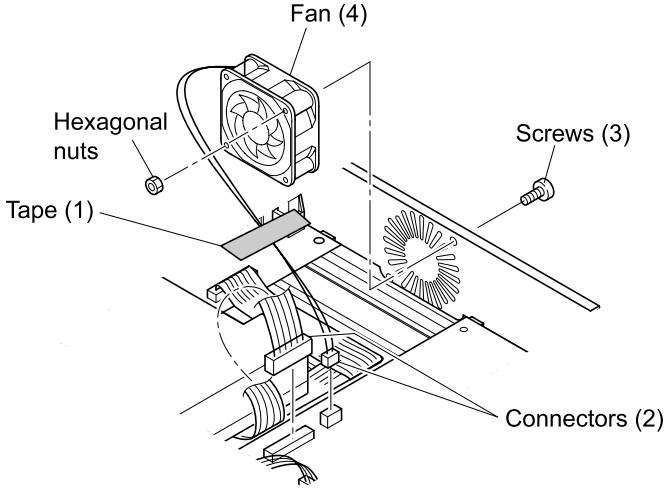


Fig. 2-1-5

1-2. PC Board Replacement

1-2-1. Tuner Unit PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Disconnect the flexible cable (1).
3. Remove the screw (2) and the screw (3).
4. Remove the claw, then remove the Tuner Unit PC board (4).

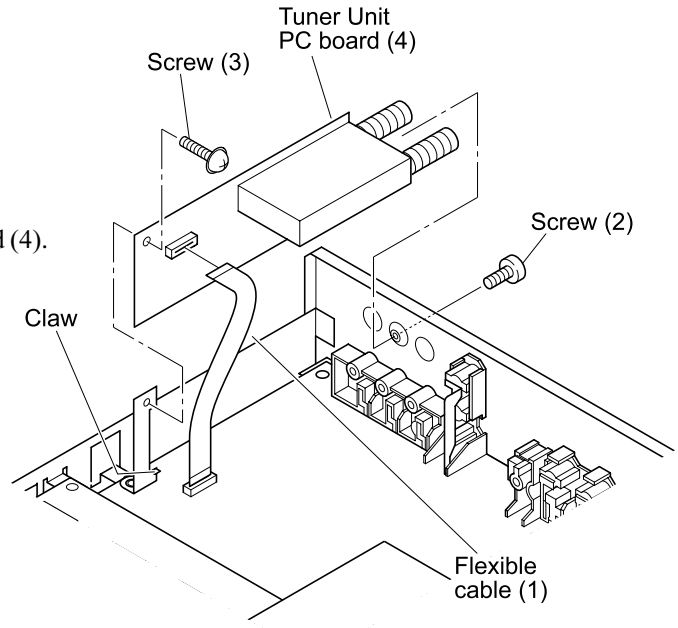


Fig. 2-1-6

1-2-2. Digital PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Peel off the tape (1).
2. Disconnect the flexible cable (2).
3. Remove four screws (3), then remove the Digital PC board (4).

Note:

- The Digital PC board (4) is connected to the Mother PC board (5) by three connectors (6). Take notice when removing.

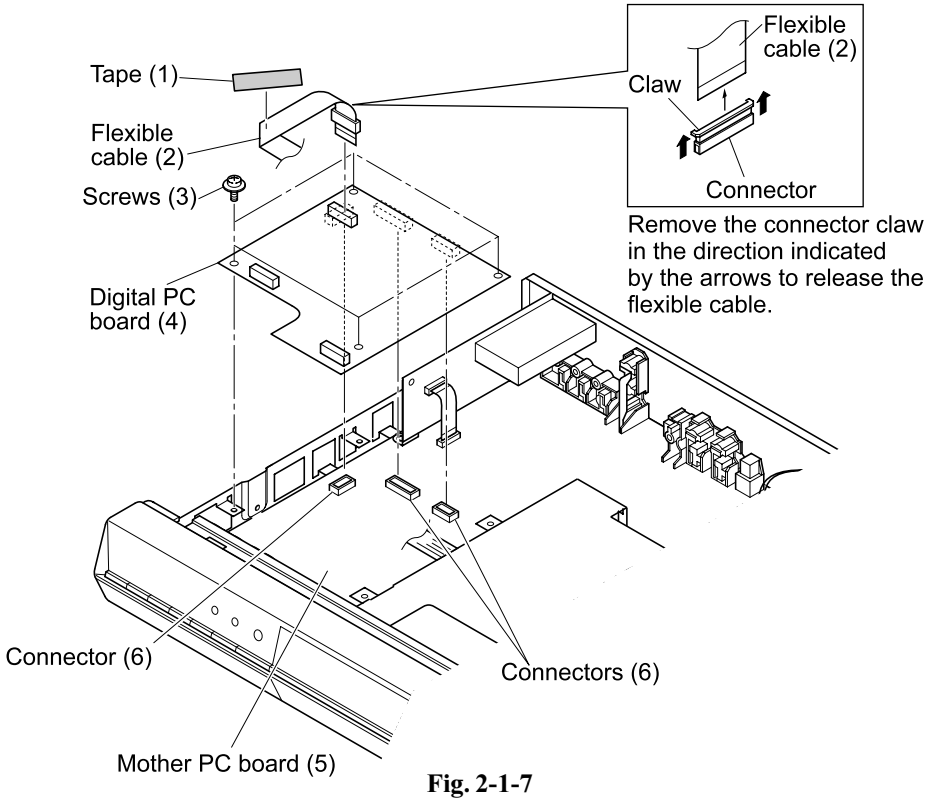


Fig. 2-1-7

1-2-3. Mother PC Board

1. Remove the rear panel. (Refer to item 1-1-4.)
2. Remove the Tuner Unit PC board. (Refer to item 1-2-1.)
3. Remove the Digital PC board. (Refer to item 1-2-2.)
4. Disconnect three connectors (1).
5. Remove five screws (2) and the screw (3).
6. Pull out the Mother PC board (4) toward the rear side (indicated by the arrow).

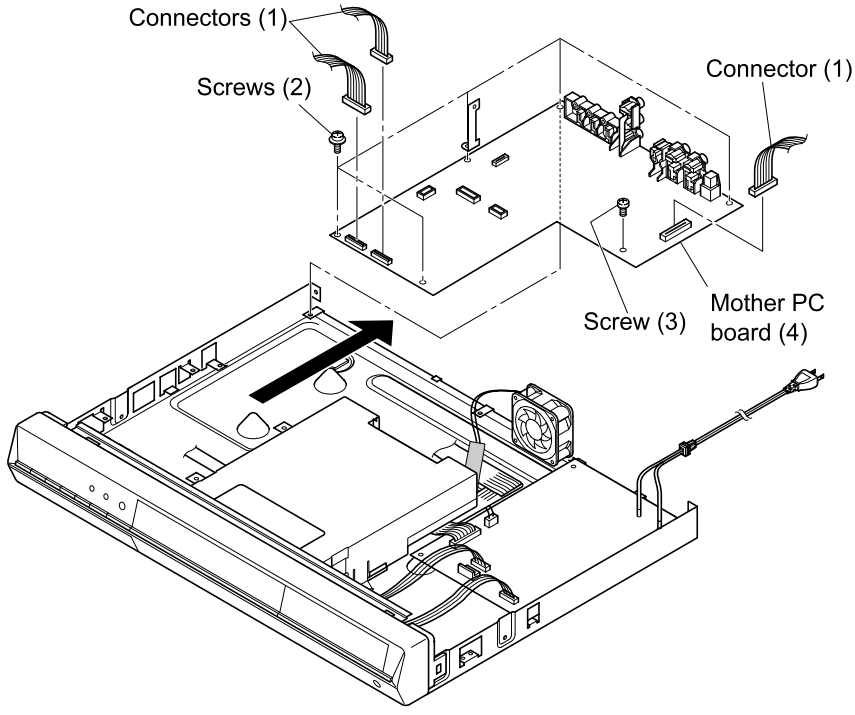


Fig. 2-1-8

1-2-4. Power PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Peel off the tape (1).
3. Disconnect four connectors (2).
4. Remove four screws (3), then remove the Power PC board (4).

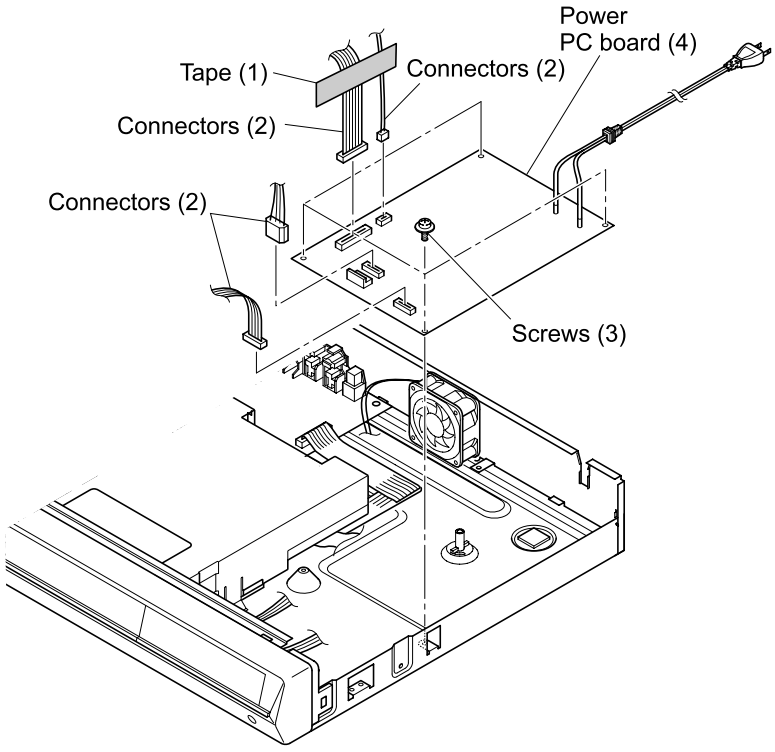


Fig. 2-1-9

1-2-5. Front (R), Front (L), Front (LED) and Front Jack PC Boards

1. Remove the front panel. (Refer to item 1-1-2.)
2. Peel off two tapes (1).
3. Remove four screws (2), then remove the stay (3).
4. Remove four screws (4) and two screws (5), then remove the Front (R) PC board (6) and Front (LED) PC board (7).
5. Remove two screws (8), then remove the Front Jack PC board (9).
6. Remove four screws (10), then remove the Front (L) PC board (11).

Note:

- After replacing, attach the tape (1) to its original position.

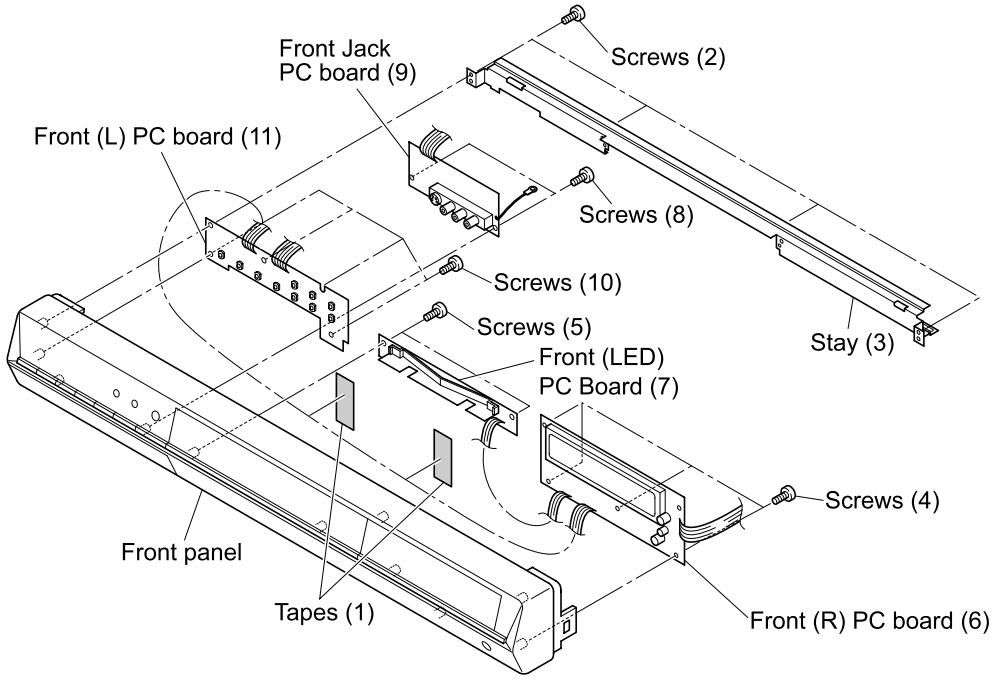


Fig. 2-1-10

Note:

- Fasten with the tape, taking care so that the wire does not hang over the tray door.

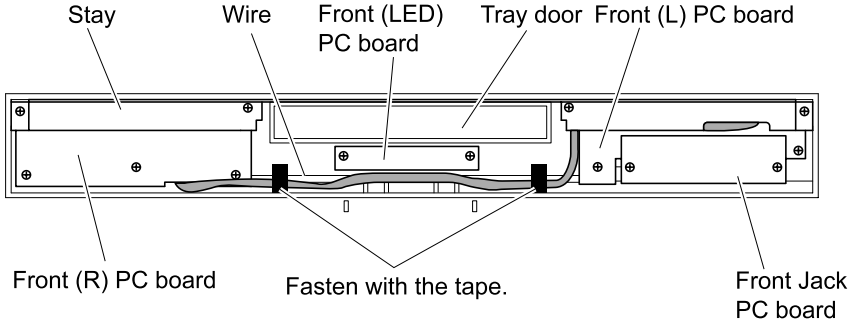


Fig. 2-1-11

2. WIRING CONNECTION DIAGRAM

After the servicing is complete, return the wiring to its original state by using the diagram below as a reference.

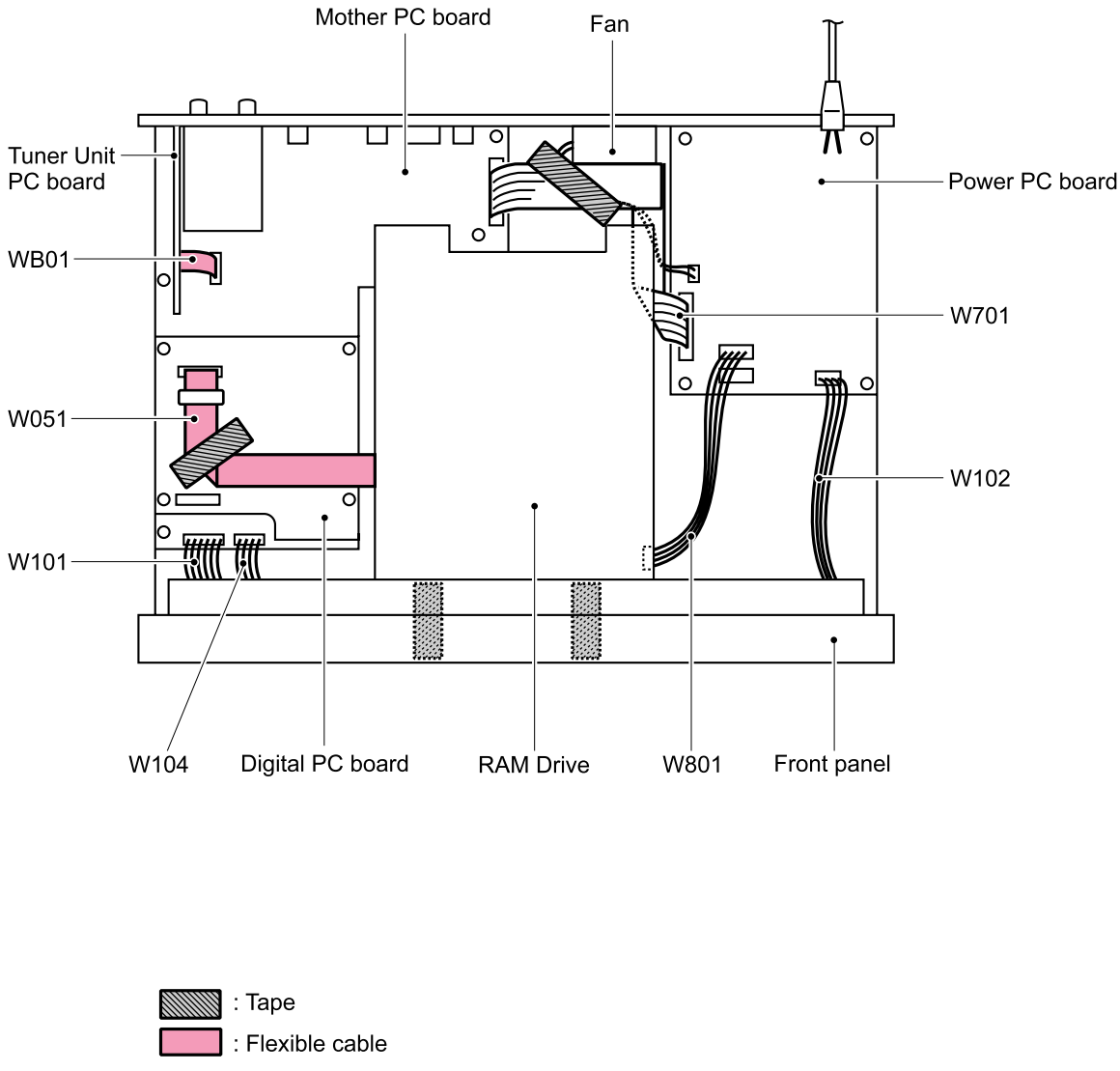


Fig. 2-2-1

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (⚠) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

- **Integrated Circuit (IC)**
- **Capacitor (Cap)**
  - **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 – 10	+ 50 – 10	+ 75 – 10	+ 20 – 10	+ 100 – 10	+ 40 – 20	+ 150 – 10	+ 80 – 20

Ex. 10µF J = 10µF ± 5%

  - **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

- **Resistor (Res)**
  - **Resistance tolerance**

Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ΩJ = 470Ω± 5%

1. EXPLODED VIEWS

1-1. Packing Assembly

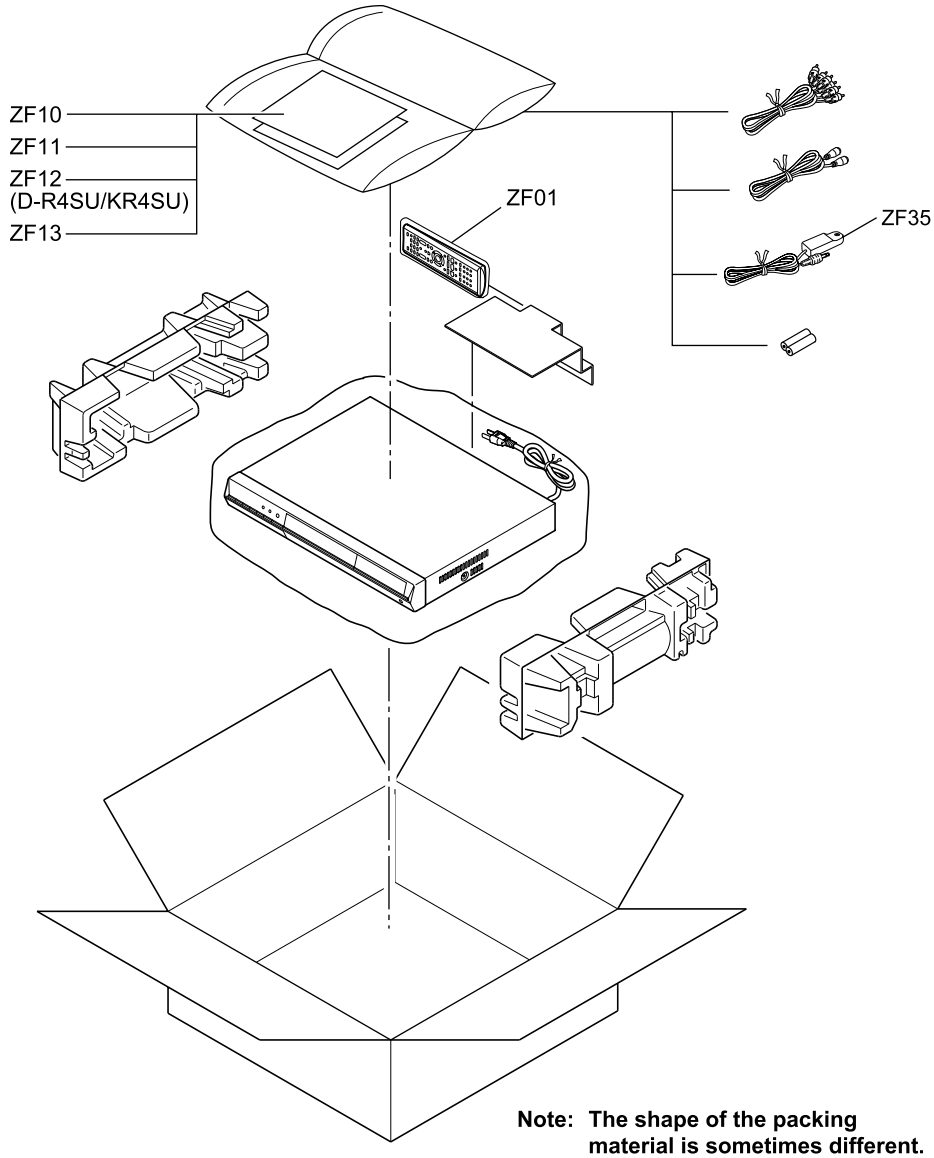


Fig. 4-4-1

1-2. Chassis Assembly

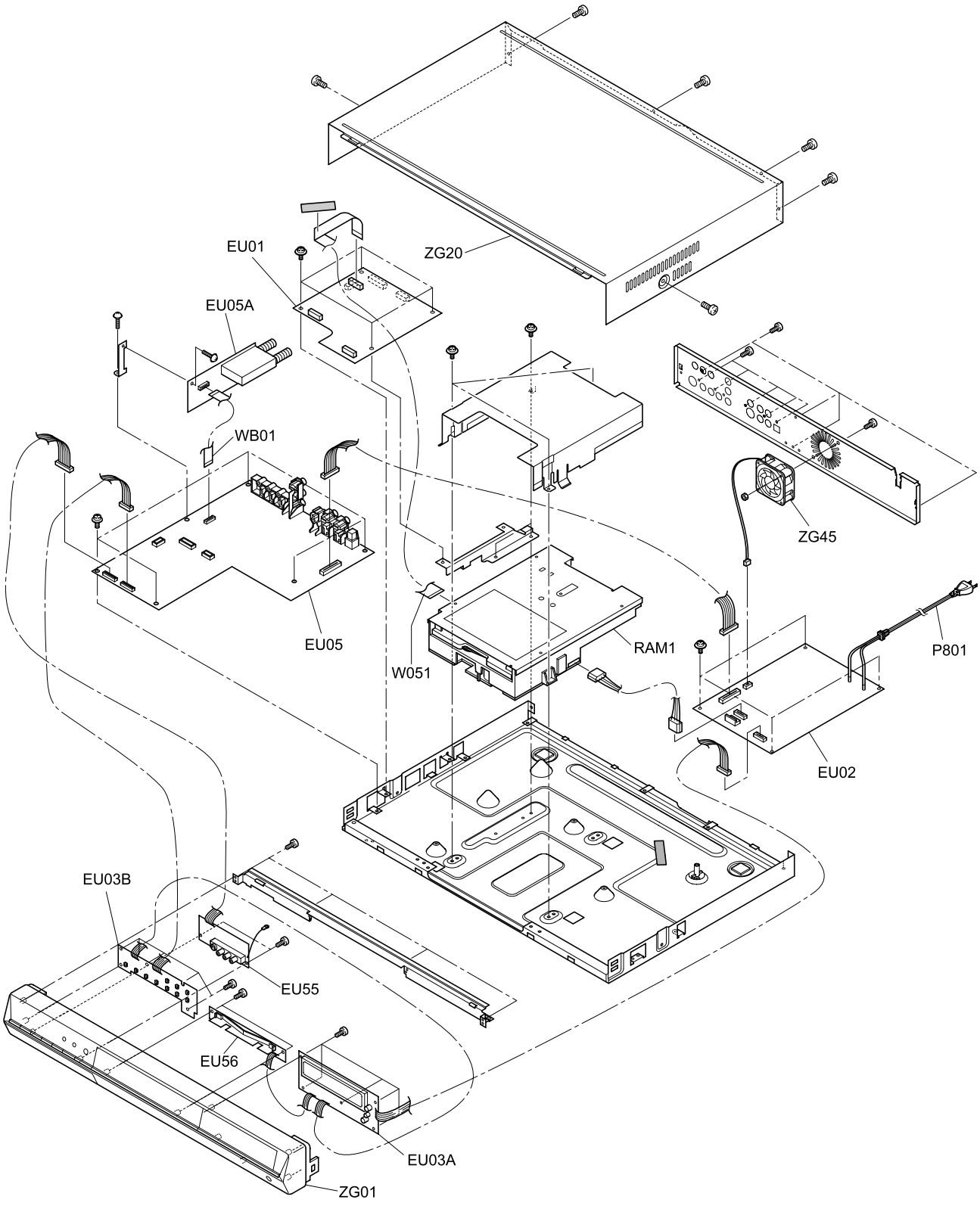


Fig. 4-4-2

2. PARTS LIST

	Location No.	Part No.	Description	
			- MECHANICAL PARTS -	
!	P801	P000416780	Cord,Power	UL
!	RAM1	P000438600	DVD-RAM	DAV-WR412(RAM-R650)
	W051	P000433820	Cable,Flexible	FFC,40P,L280
	WB01	P000439330	Cable,Flexible	FFC,11P,L90
	ZF01	P000438630	Remote Control Unit	SE-R0176
!	ZF10	P000416410	Owners Manual,OP	English,D-R4SU/SC/KR4SU
!	ZF11	P000416400	Owners Manual,ST	English,D-R4SU/SC/KR4SU
!	ZF12	P000416430	Owners Manual,Quick	Spanish,D-R4SU/KR4SU
!	ZF13	P000416420	Owners Manual,Quick	English,D-R4SU/SC/KR4SU
!	ZF10	P000416450	Owners Manual,OP	French,D-R4SC
!	ZF11	P000416440	Owners Manual,ST	French,D-R4SC
	ZF35	P000416800	IR Blaster	RWS1000-0062E
	ZG01	P000438710	Panel Assy,Front	D-R4SU/R4SC
	ZG01	P000440030	Panel Assy,Front	D-KR4SU
	ZG20	P000438610	Cover,Top	
	ZG45	P000401260	Fan,DC	5025LL12SND2

	Location No.	Part No.	Description	
			- ELECTRICAL PARTS -	
	EU01	P000439050	PC Board Assy	Digital,D-R4SU/KR4SU
	EU01	P000439340	PC Board Assy	Digital,D-R4SC
			- INTEGRATED CIRCUITS -	
	IC202	P000378050	IC	SN74AHC1G04HDCKR
	IC203	P000378050	IC	SN74AHC1G04HDCKR
	IC302	P000416750	IC	BA25BC0FP
	IC303	P000440410	IC	MM1573DNRE
	IC304	P000391240	IC	NJM2125F
	IC306	P000378040	IC	SN74AHC1G08HDCKR
	IC307	79040306	IC	PST594JMT
	IC315	P000377920	IC	SN74LV244APWR
			- TRANSISTORS -	
	Q301	79050018	Transistor,Chip	2SA1162-Y
	Q302	79050018	Transistor,Chip	2SA1162-Y
	Q303	79050018	Transistor,Chip	2SA1162-Y
	Q304	79050018	Transistor,Chip	2SA1162-Y
	Q305	79050018	Transistor,Chip	2SA1162-Y
	Q306	79050016	Transistor,Chip	2SC2712-Y
	Q307	79050016	Transistor,Chip	2SC2712-Y
	Q308	79050018	Transistor,Chip	2SA1162-Y
	Q309	79050018	Transistor,Chip	2SA1162-Y
			- MISCELLANEOUS -	
	X201	P000440380	Oscillator,Crystal	
	X302	79089168	Oscillator,Crystal	
	X303	P000377990	Oscillator,Crystal	27.0M
!	EU02	P000438620	PC Board Assy	Power
	EU03A	P000438660	PC Board Assy	Front(R)
			- INTEGRATED CIRCUITS -	
	IC101	P000416700	IC	PT6315
			- DIODES -	
	D101	79060019	Diode,Chip	1SS355
			- MISCELLANEOUS -	
	DS101	P000440490	Display,FL	VFD20-0812FN
	MT101	P000440420	Module,IR	GP1UM261XK0F
	S107	P000377940	Switch,Push-Lever	
	EU03B	P000438670	PC Board Assy	Front(L)
			- MISCELLANEOUS -	
	S101	P000391050	Switch,Tact	
	S102	P000391050	Switch,Tact	
	S103	P000391050	Switch,Tact	
	S104	P000391050	Switch,Tact	
	S105	P000391050	Switch,Tact	
	S106	P000391050	Switch,Tact	
	S108	P000391050	Switch,Tact	
	S109	P000391050	Switch,Tact	
	S110	P000391050	Switch,Tact	
	S112	P000391050	Switch,Tact	
	EU05	P000438650	PC Board Assy	Mother
			- INTEGRATED CIRCUITS -	
	IC701	P000391180	IC	PST3222NR
	IC702	P000391150	IC	DC74HCT125M
	IC901	P000440480	IC	PCM1755DBQR
	IC902	P000440510	IC	RC4580IDR
	IC903	P000416650	IC,Terminal,OPT	LAF1001-0301F
	IC906	79040397	IC	MM1575ANRE

	Location No.	Part No.	Description	
	ICB10	P000440500	IC	XC6209F502PR
	ICW01	P000391260	IC	MM1568DJBEG
	ICX03	79040382	IC	MM1140XFFE
	ICX04	79040369	IC	MM1113XFBE
	ICX05	P000440500	IC	XC6209F502PR
	ICX31	79040371	IC	BA7046F
	ICX32	P000363370	IC	NJM2330MV
			- TRANSISTORS -	
	Q901	79050014	Transistor,Chip	HN1C03F
	Q902	79050014	Transistor,Chip	HN1C03F
	Q904	79050001	Transistor,Chip	RN2402
	Q905	79050100	Transistor,Chip	RN1402
	Q906	79050001	Transistor,Chip	RN2402
	Q907	79050100	Transistor,Chip	RN1402
	Q908	79050100	Transistor,Chip	RN1402
	QB08	79050016	Transistor,Chip	2SC2712-Y
	QW02	79050100	Transistor,Chip	RN1402
	QW03	79050018	Transistor,Chip	2SA1162-Y
	QW04	79050018	Transistor,Chip	2SA1162-Y
	QX06	79050018	Transistor,Chip	2SA1162-Y
	QX09	79050018	Transistor,Chip	2SA1162-Y
	QX31	79050016	Transistor,Chip	2SC2712-Y
	QX32	79050100	Transistor,Chip	RN1402
	QX33	P000440390	Transistor,Chip	RN1404
			- DIODES -	
	D702	79060028	Diode,Chip	1SS226
	D901	79060019	Diode,Chip	1SS355
	D902	79060019	Diode,Chip	1SS355
			- MISCELLANEOUS -	
	J901	P000440440	Jack,RCA	MSD-244V-09
	JW01	P000440450	Jack,RCA	MSP-801V1-02-01-B
	JW02	P000440460	Jack,RCA	MSD-243V-18
	JX01	P000440470	Jack,RCA	MSP-830V-07
	X700	P000391040	Oscillator,Crystal	12.5MHz
	X701	P000363400	Oscillator,Crystal	32.768kHz
	EU05A	P000438680	PC Board Assy	Tuner
			- MISCELLANEOUS -	
!	MB01	P000440520	Tuner	115-V-JA45AT
	EU55	P000438690	PC Board Assy	Front Jack
			- MISCELLANEOUS -	
	J170	P000387300	Jack,DV	
	J171	P000402780	Jack,3P+1Y/C	
	EU56	P000438700	PC Board Assy	Front(LED)
			- DIODES -	
	D110	P000440400	Diode,LED	SLR343BBT3F
	D111	P000440400	Diode,LED	SLR343BBT3F

SPECIFICATIONS

Power requirement during operation	21W
Power requirement at standby	2.7W
Power supply	120V AC, 60 Hz
Mass	3.5kg
External dimension	Width 430 x Height 58 x Depth 304mm
Incoming channels	TV : 2-69CH, Cable : 1-125CH
Antenna input/output terminal	VHF/UHF : 75Ω, F Connector
Signal system	Standard NTSC Color TV system
Laser	Semiconductor laser, Wavelength : 650nm/780nm
Format	DVD -VR format DVD-Video format
Image recording system	MPEG2
Sound recording system	Dolby Digital M1
VIDEO input	1.0Vp-p (75Ω), Sync signal negative, Pin jack x 2 systems, 1 at rear, 1 in front
VIDEO output	1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system, 1 at rear
S-VIDEO input	(Y) 1.0Vp-p (75Ω), Sync signal negative, (C) 0.286Vp-p (75Ω) 1 at rear, 1 in front Mini DIN4 Pin x 2 systems
S-VIDEO output	(Y) 1.0Vp-p (75Ω), Sync signal negative, (C) 0.286Vp-p (75Ω) 1 at rear Mini DIN4 Pin x 1 system
COMPONENT output(Y, P_B, P_R)	Y output (green), 1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system P_B, P_R output (blue, red), 0.7Vp-p (75Ω), Pin jack x 1 system each
AUDIO input	2.0V (rms), 22kΩ or above, pin jack (L, R) x 2 systems 1 at rear, 1 in front
AUDIO output	2.0V (rms), 2.2kΩ or below, pin jack (L, R) x 1 system 1 at rear
DIGITAL AUDIO OUTPUT BITSTREAM/PCM (OPTICAL terminal)	Optical connector x 1 system
Remote control	Wireless remote control (SE-R0176)
Operating conditions	Temperature: 41°F~95°F (5°C~35°C) Position: Horizontal
Clock display	12 hour digital display
Clock accuracy	Quartz (monthly deviation: approximately ±30 seconds)

- The design and specifications may change without prior notice.
- The Illustrations and screens described in this manual may be exaggerated or simplified for easy recognition and may be slightly different from the actual unit.

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

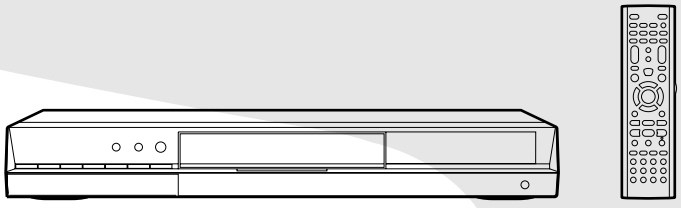
TOSHIBA

FILE NO. 810-200531

CIRCUIT DIAGRAMS

DVD VIDEO RECORDER

D-R4SU
D-R4SC
D-KR4SU



DOCUMENT CREATED IN JAPAN, Jul., 2005

SECTION 3
SERVICING DIAGRAMS

1. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

1-1. Precautions for Part Replacement

- In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

1-2. Solid Resistor Indication

Unit	None ..... Ω K ..... kΩ M ..... MΩ
Tolerance	None ..... ±5% B ..... ±0.1% C ..... ±0.25% D ..... ±0.5% F ..... ±1% G ..... ±2% K ..... ±10% M ..... ±20%
Rated Wattage	(1) Chip Parts None ..... 1/16W (2) Other Parts None ..... 1/6W Other than above, described in the Circuit Diagram.
Type	None ..... Carbon film S ..... Solid R ..... Oxide metal film M ..... Metal film W ..... Cement FR ..... Fusible

Eg. 1

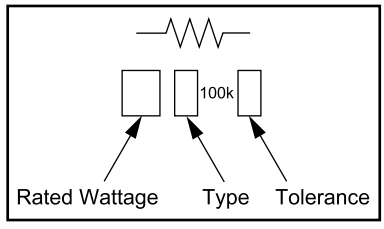


Fig. 3-1-1

1-3. Capacitance Indication

Symbol	..... Electrolytic, Special electrolytic NP ..... Non polarity electrolytic ..... Ceramic, plastic M ..... Film ..... Trimmer
Unit	None ..... F μ ..... μF p ..... pF
Rated voltage	None ..... 50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None ..... ±5% or more B ..... ±0.1% C ..... ±0.25% D ..... ±0.5% F ..... ±1% G ..... ±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None ..... more than ±5 pF B ..... ±0.1 pF C ..... ±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None ..... SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

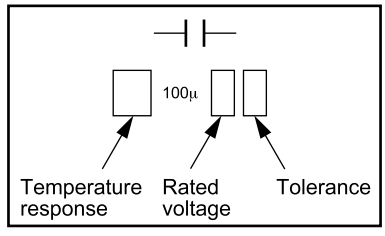


Fig. 3-1-2

Eg. 3

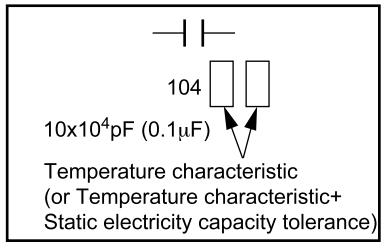


Fig. 3-1-3

1-4. Inductor Indication

Unit	None ..... H μ ..... μH m ..... mH
Tolerance	None .....±5% B .....±0.1% C .....±0.25% D .....±0.5% F .....±1% G .....±2% K .....±10% M .....±20%

Eg. 4

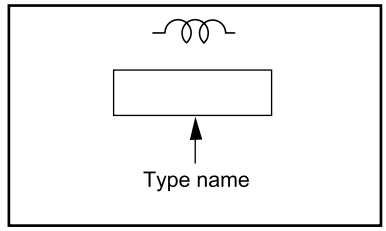


Fig. 3-1-4

1-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

Eg. 5

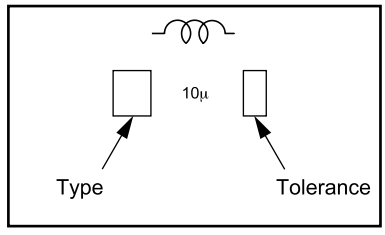
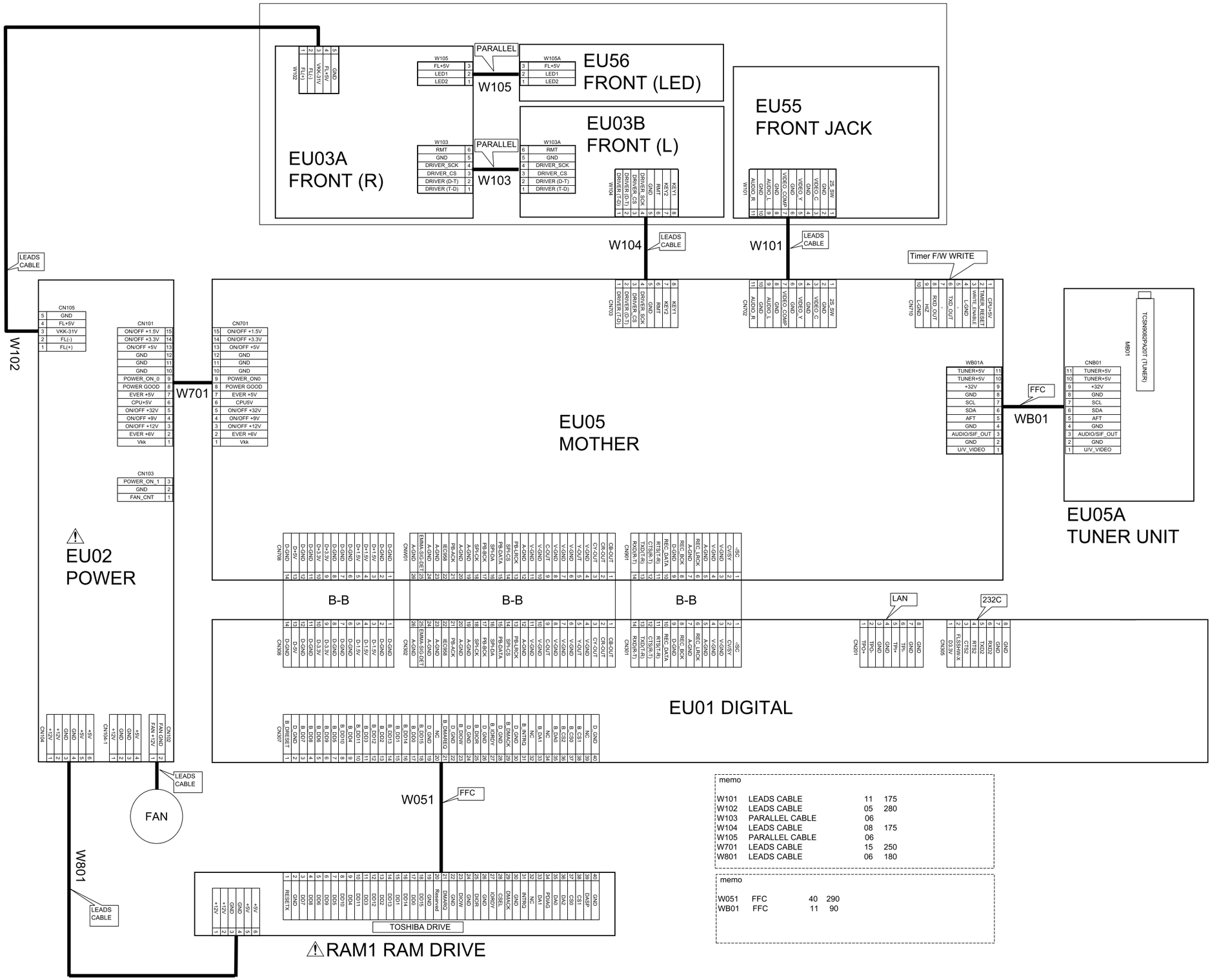


Fig. 3-1-5

1-6. Others

- The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

2. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM



memo			
W101	LEADS CABLE	11	175
W102	LEADS CABLE	05	280
W103	PARALLEL CABLE	06	
W104	LEADS CABLE	08	175
W105	PARALLEL CABLE	06	
W701	LEADS CABLE	15	250
W801	LEADS CABLE	06	180

memo			
W051	FFC	40	290
WB01	FFC	11	90

Fig. 3-2-1

3. BLOCK DIAGRAMS

3-1. Overall Block Diagram

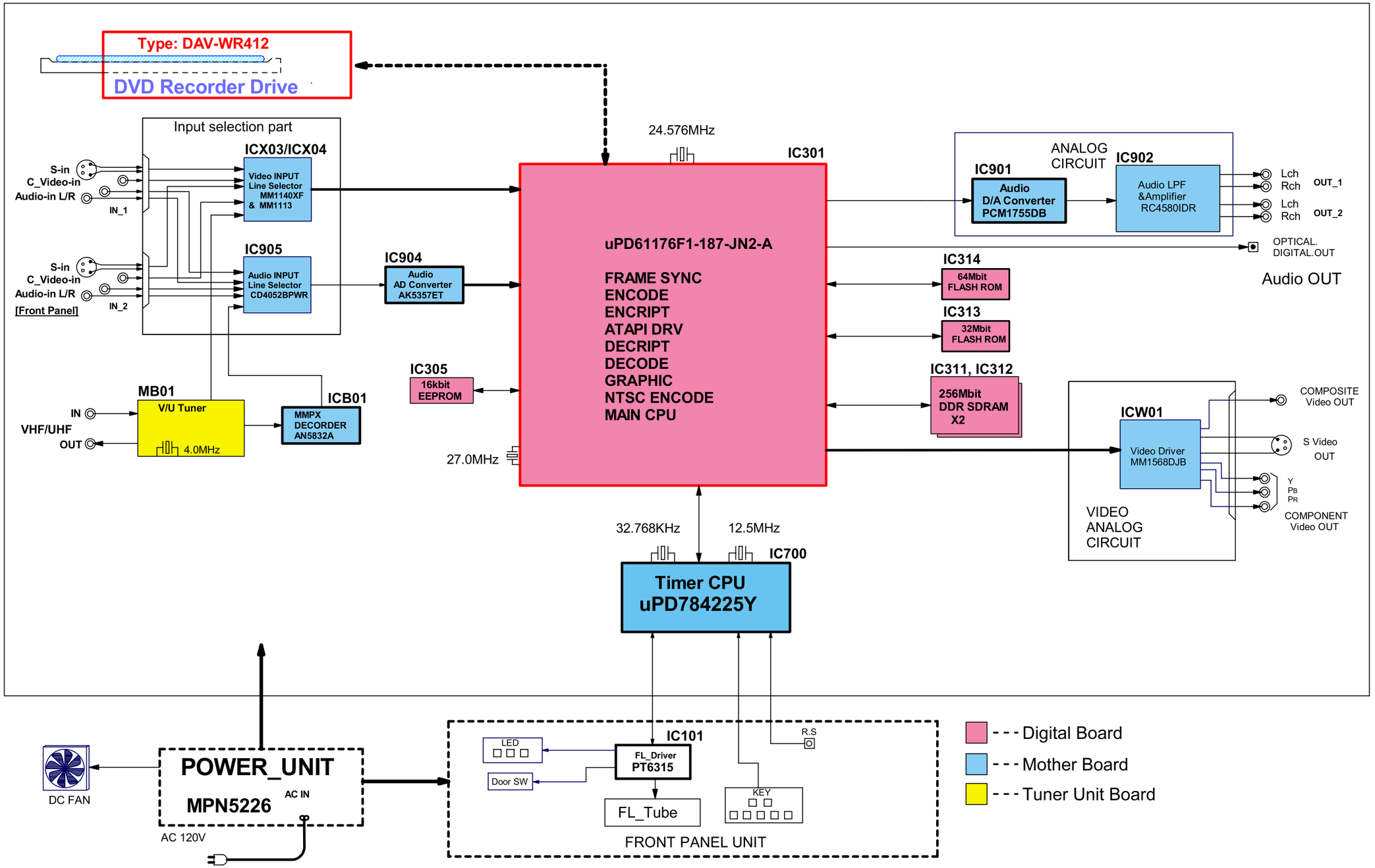


Fig. 3-3-1

4. CIRCUIT DIAGRAMS

4-1. Power Supply Circuit Diagram

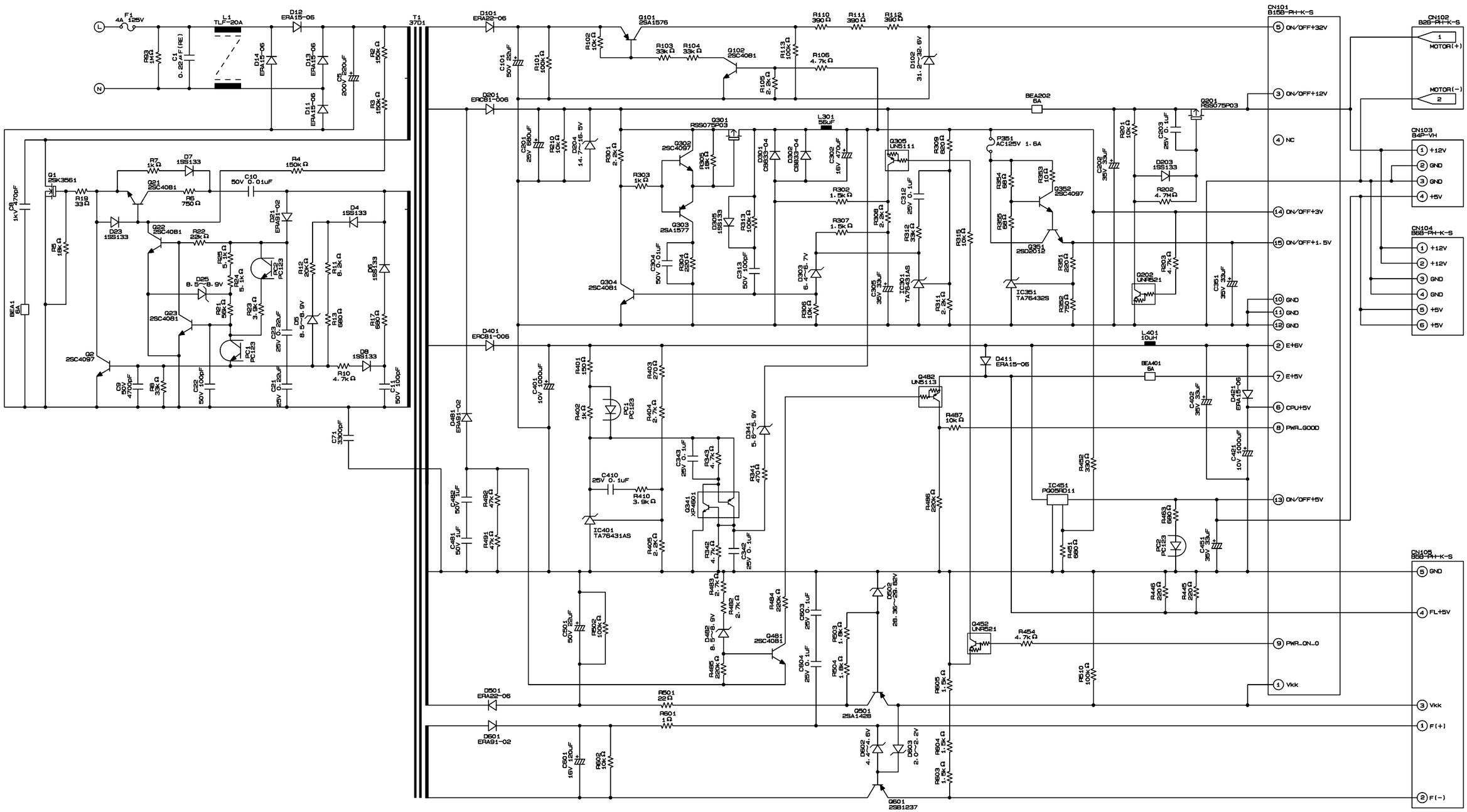


Fig. 3-4-1

4-2. Front Circuit Diagram

4-2-1. Front Jack Circuit Diagram

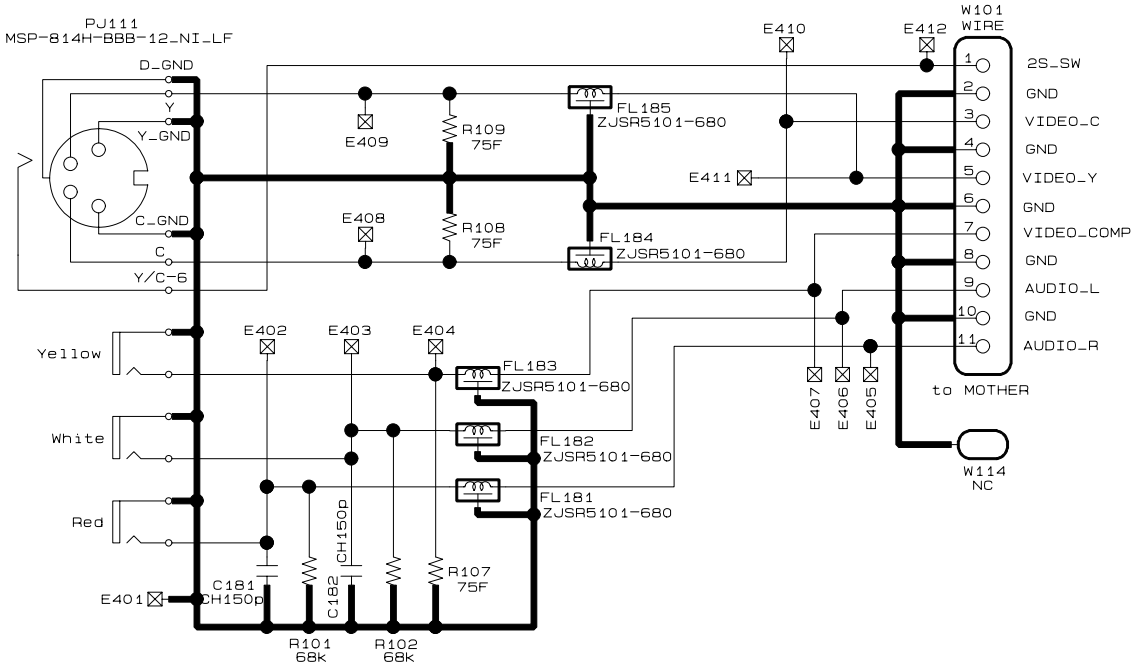


Fig. 3-4-2

4-2-2. Front (LED) Circuit Diagram

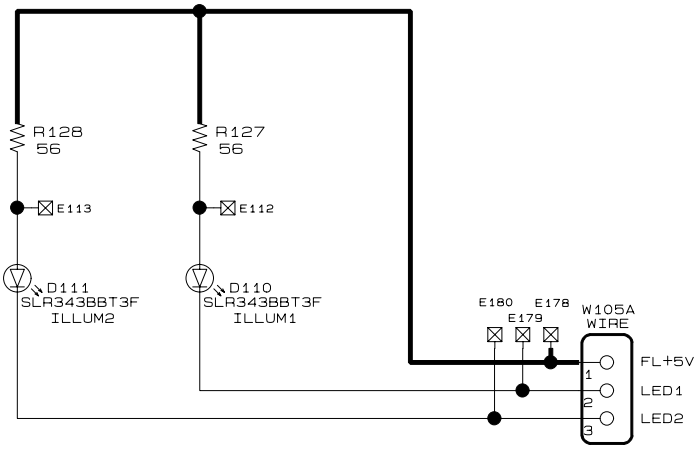


Fig. 3-4-3

4-2-3. Front (L) Circuit Diagram

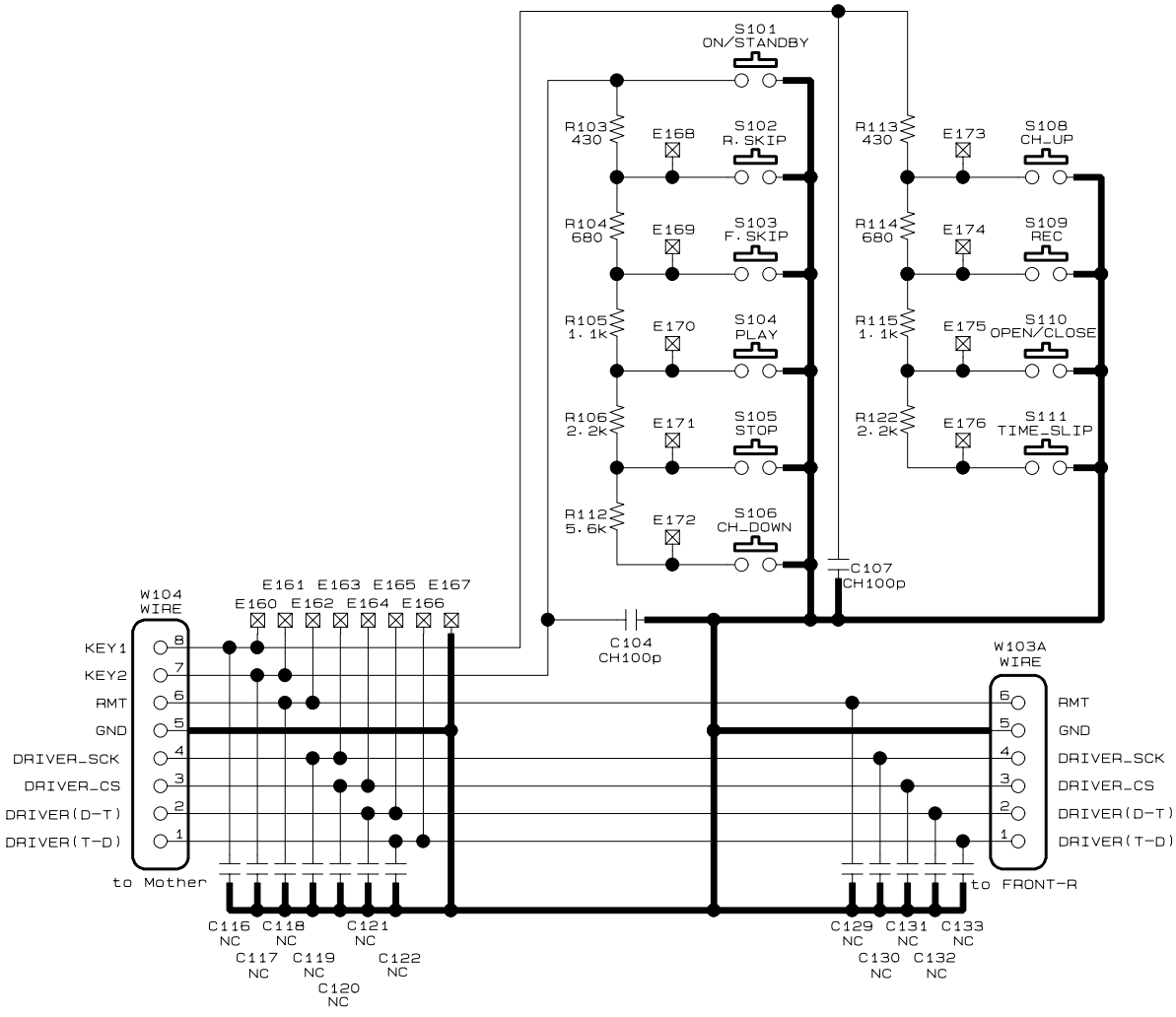


Fig. 3-4-4

4-2-4. Front (R) Circuit Diagram

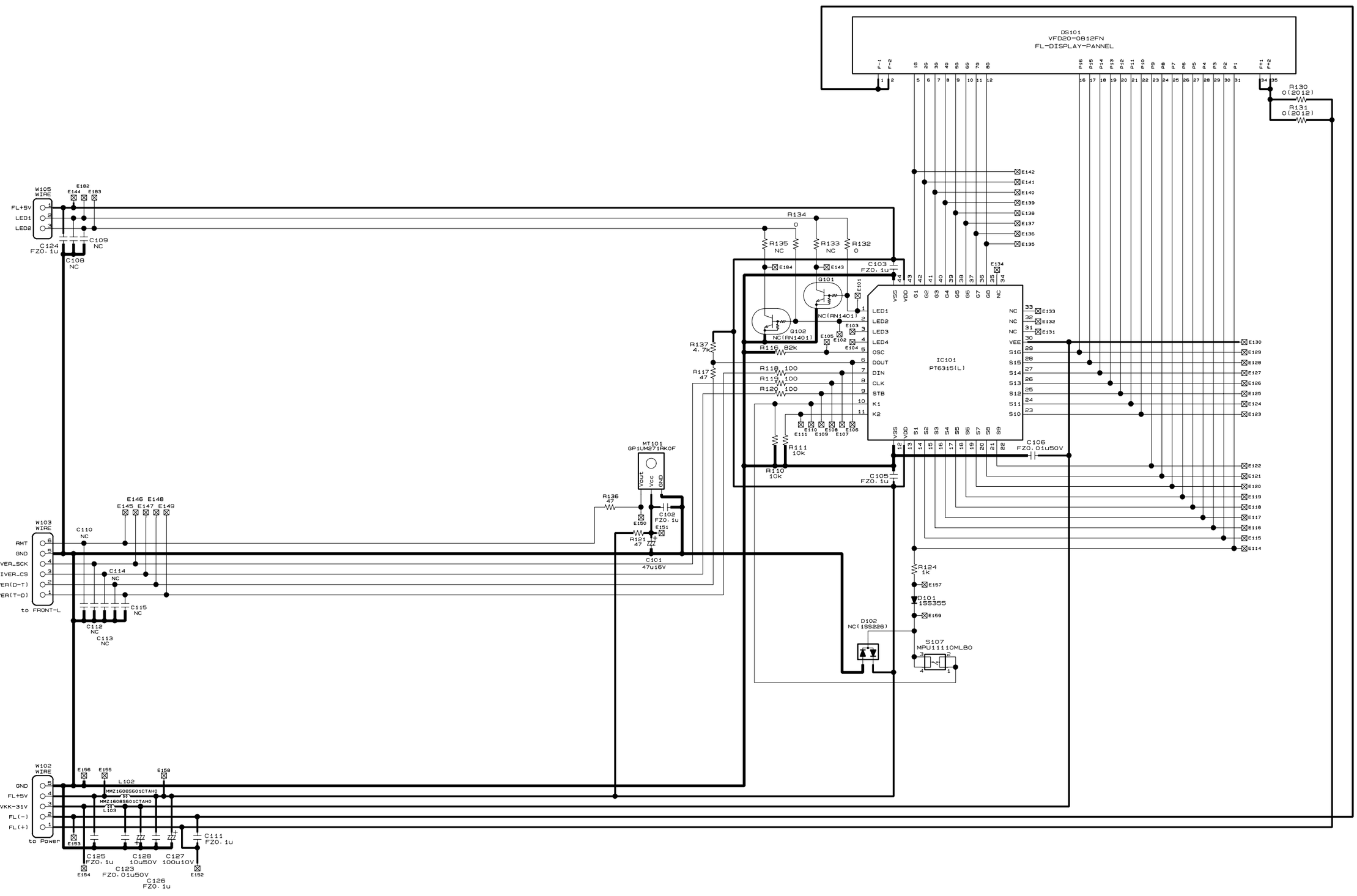


Fig. 3-4-5

4-3. Digital Circuit Diagram

4-3-1. Digital 1 Circuit Diagram

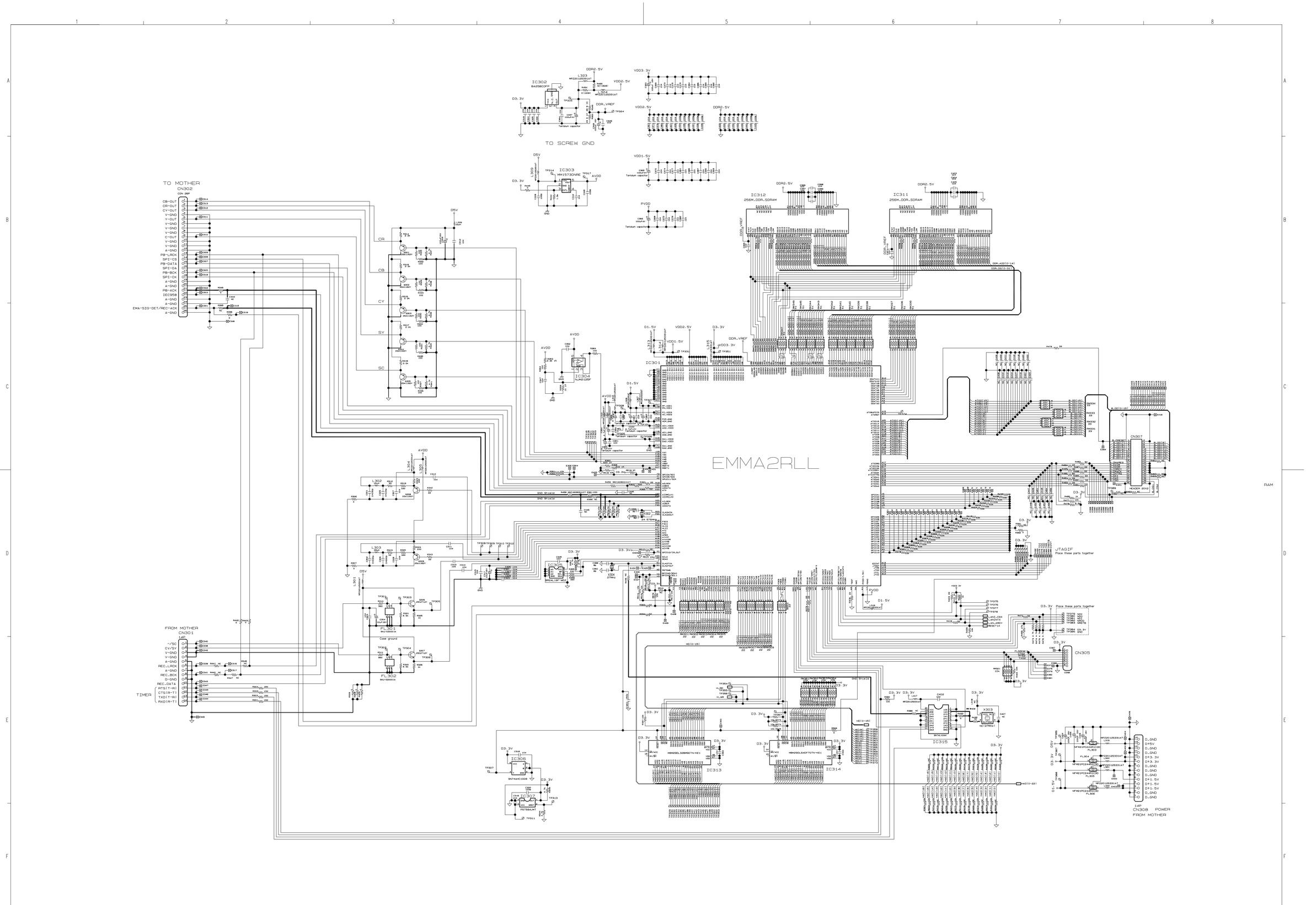
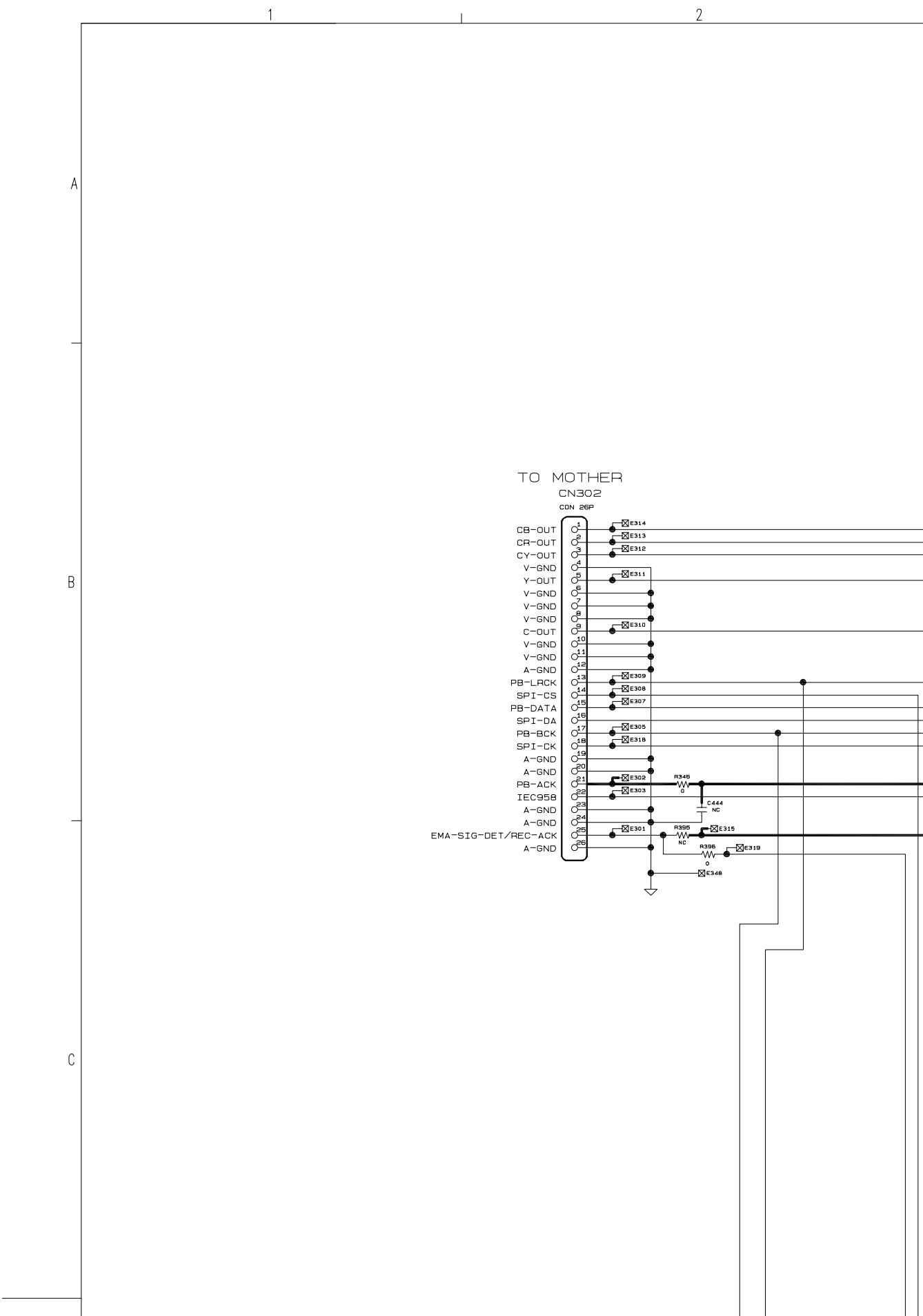
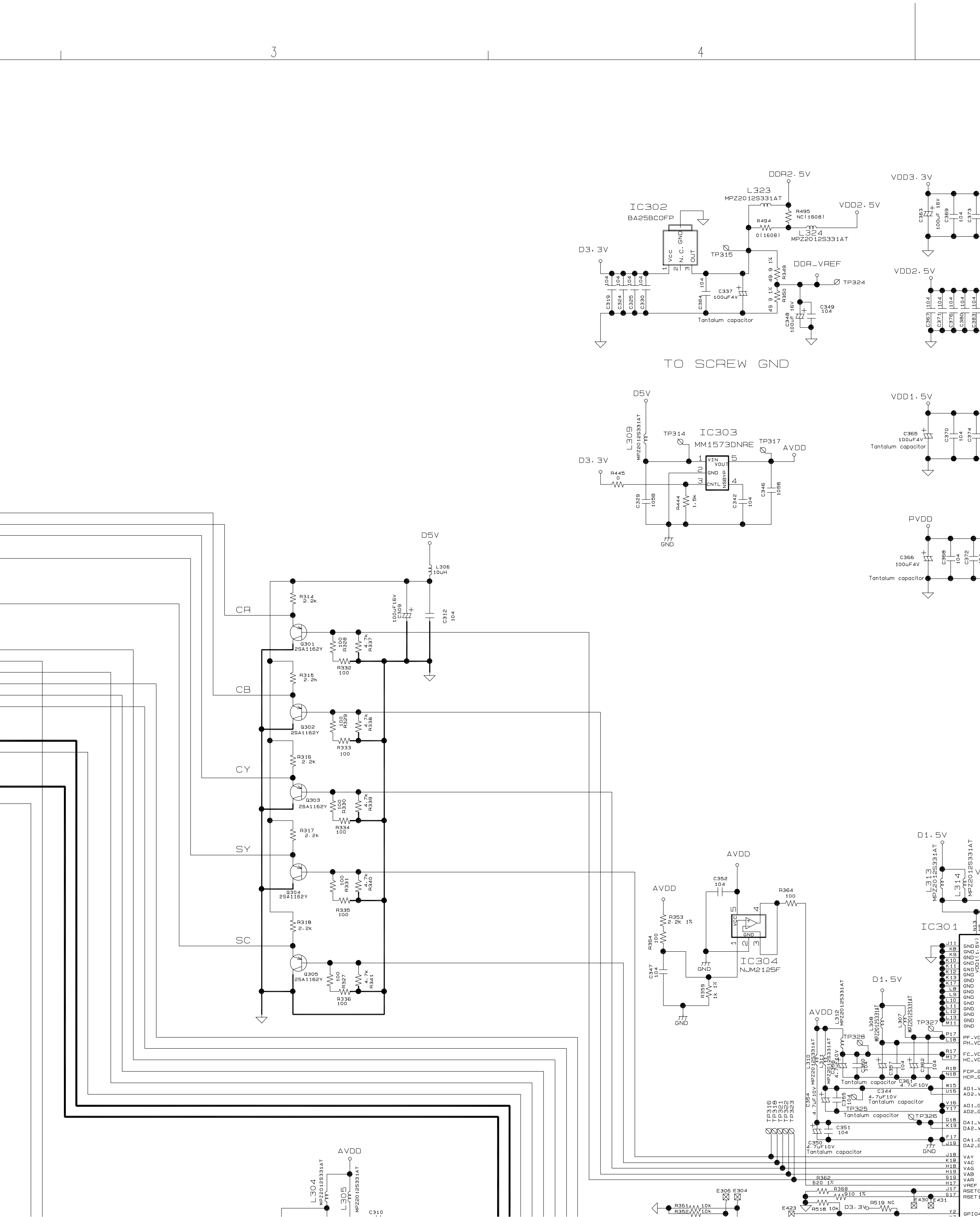


Fig. 3-4-6

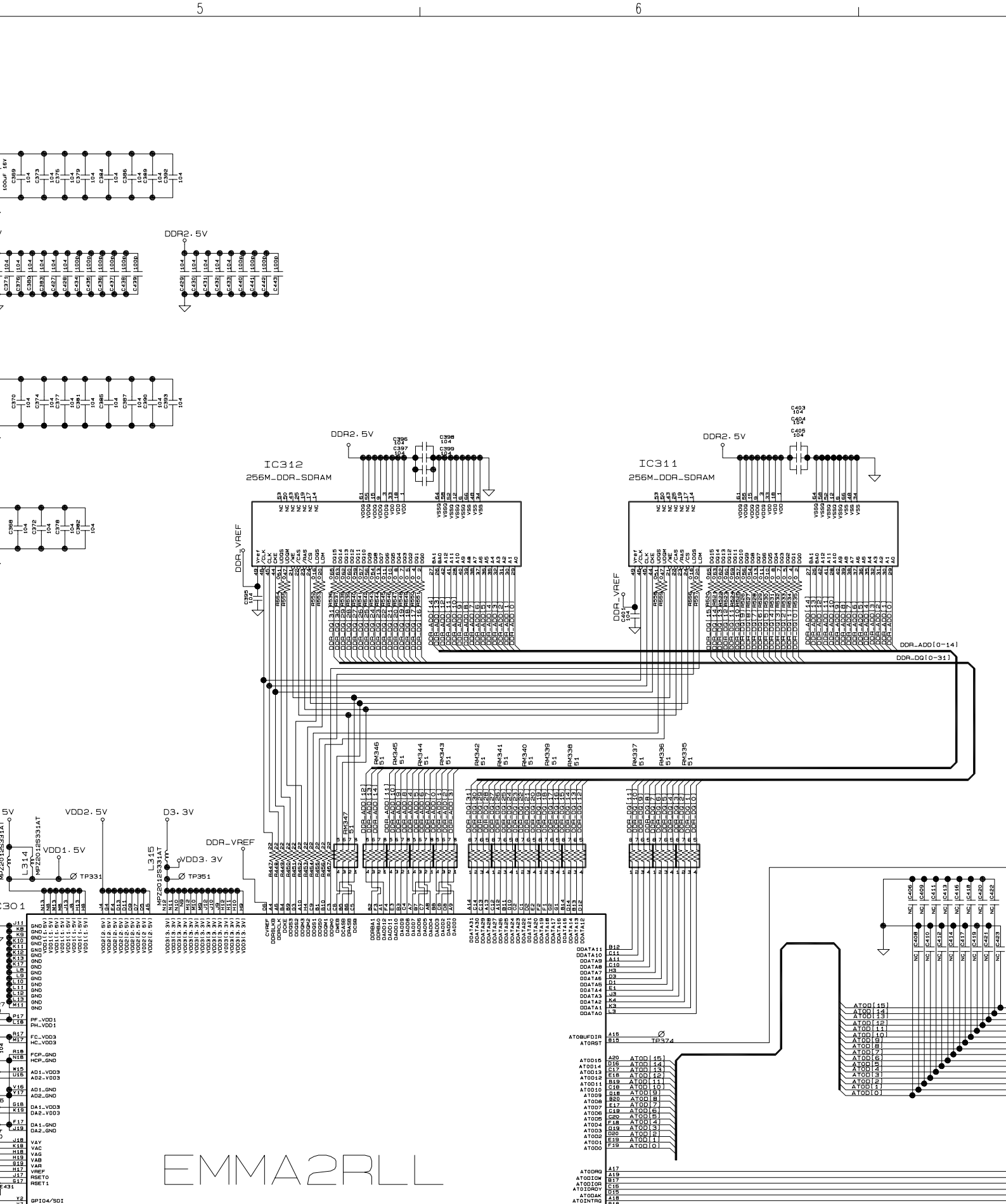
4-3. Digital Circuit Diagram

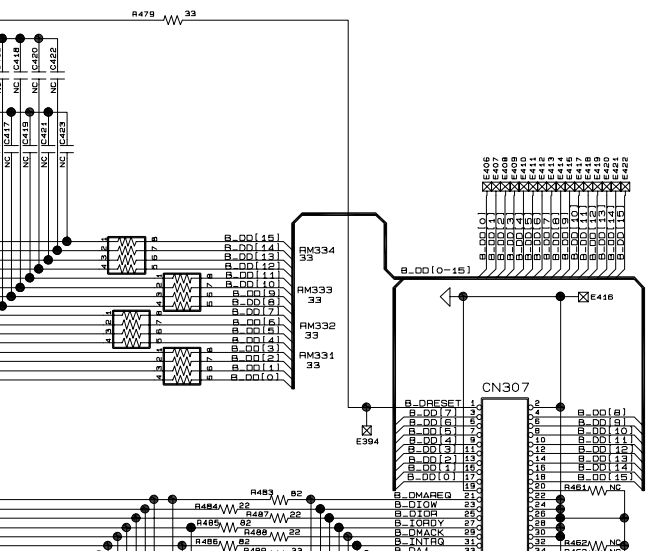
4-3-1. Digital 1 Circuit Diagram

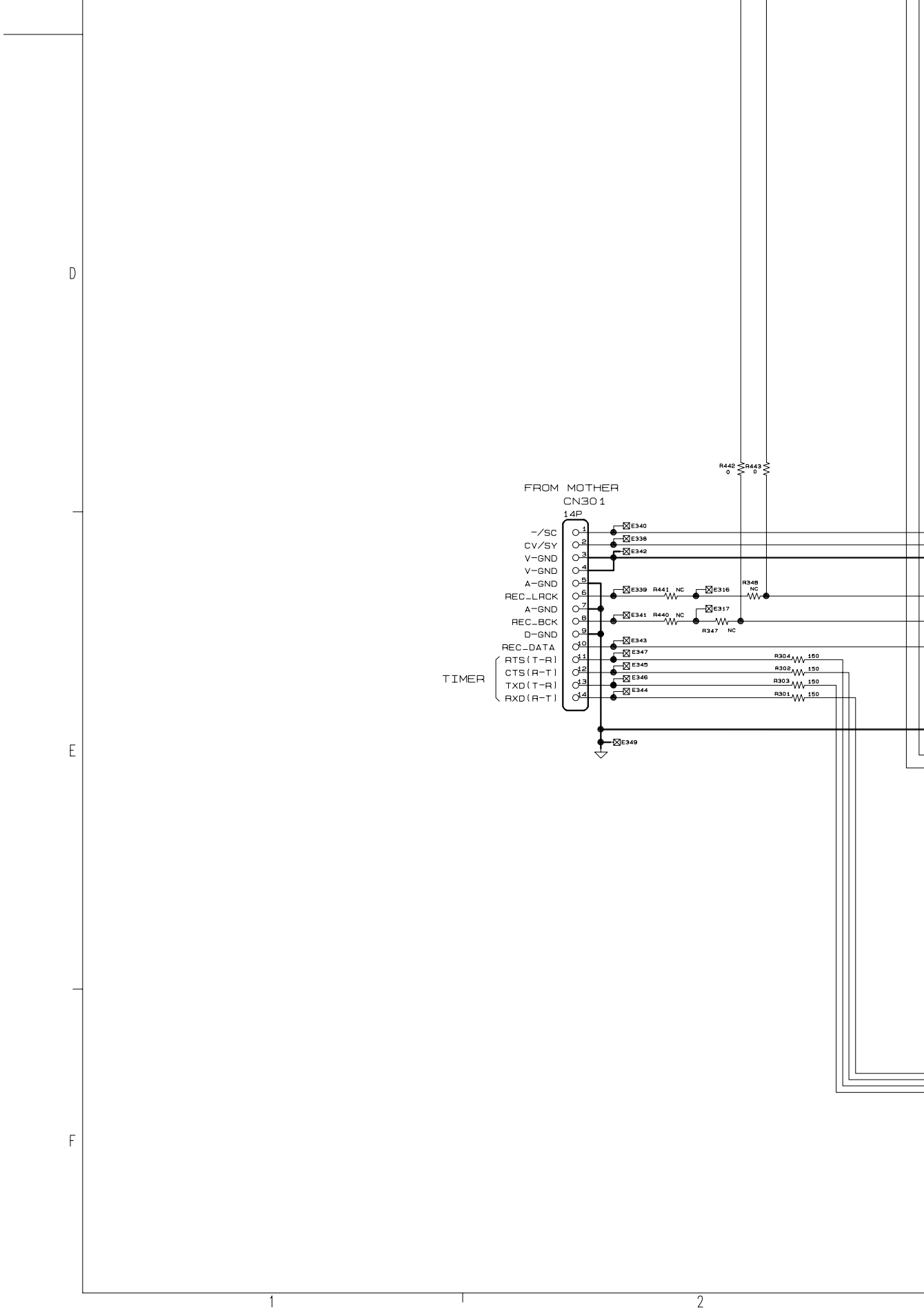


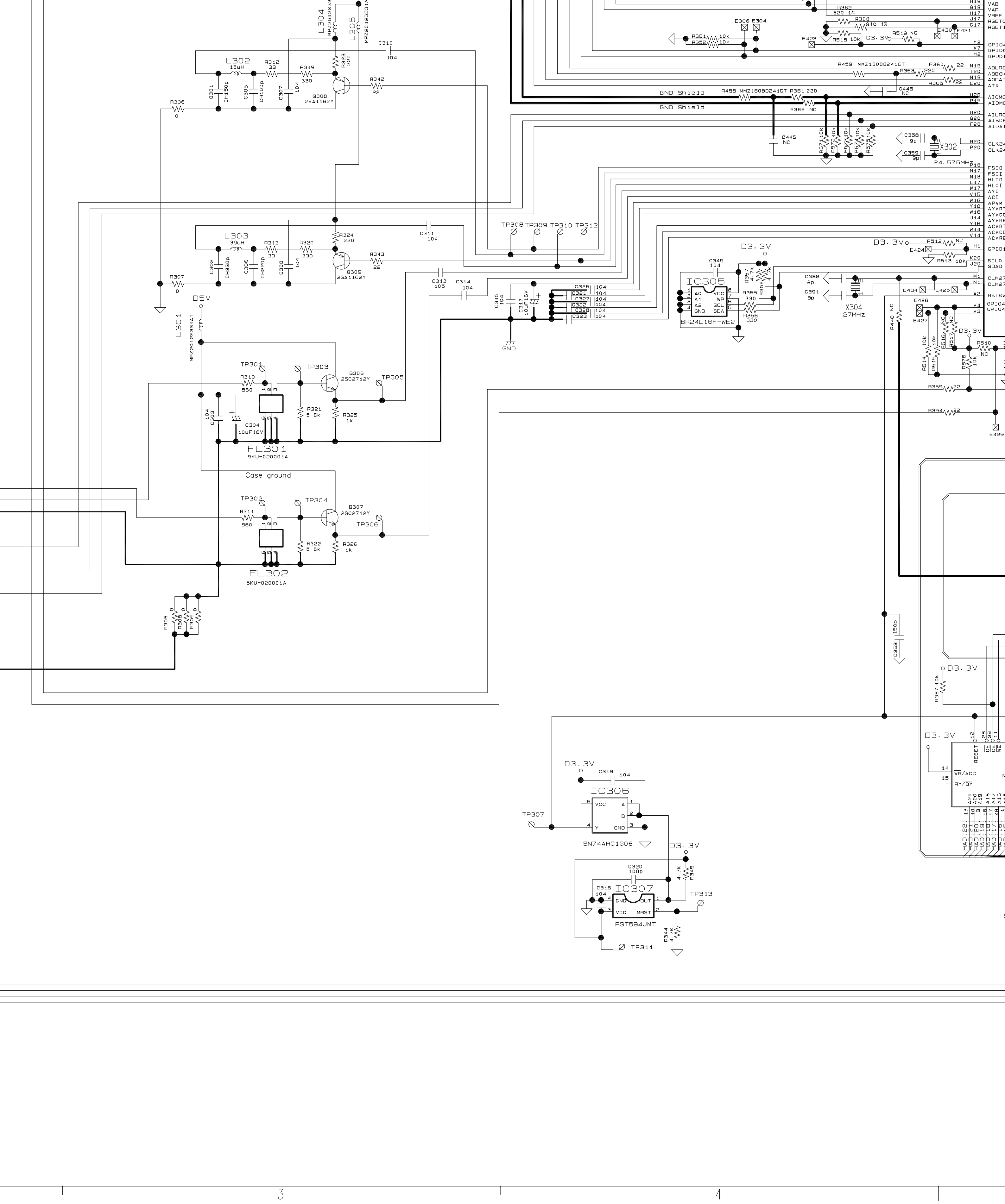


3
4
IC302
BA25BC0FP
D3.3V
DDR2.5V
L323
MPZ2012S331AT
R495
NC(1608)
VDD2.5V
R494
0(1608)
L324
MPZ2012S331AT
TP315
DDR_VREF
TP324
C337
100uF4V
Tantalum capacitor
C349
104
TO SCREW GND
VDD3.3V
VDD2.5V
VDD1.5V
C365
100uF4V
Tantalum capacitor
PVDD
C366
100uF4V
Tantalum capacitor
D5V
L309
TP314
IC303
MM1573DNRE
TP317
AVDD
R445
R444
1.5k
C342
104
C346
105B
GND
L306
10uH
C309
C312
104
CR
CB
CY
SY
SC
R314
2.2k
Q301
2SA1162Y
R332
100
R315
2.2k
Q302
2SA1162Y
R333
100
R316
2.2k
Q303
2SA1162Y
R334
100
R317
2.2k
Q304
2SA1162Y
R335
100
R318
2.2k
Q305
2SA1162Y
R336
100
AVDD
C352
104
R364
100
R353
2.2k 1%
R354
100
C347
104
IC304
NJM2125F
R359
1k 1%
D1.5V
L313
L314
IC301
TP327
TP328
TP325
TP326
C344
4.7uF10V
Tantalum capacitor
C351
104
C350
4.7uF10V
Tantalum capacitor
TP316
TP318
TP321
TP322
TP323
R362
620 1%
R368
910 1%
R519 NC
R518 10k
E306
E304
E430
E431
E423
R351 10k
R352 10k
L304
L305
C310

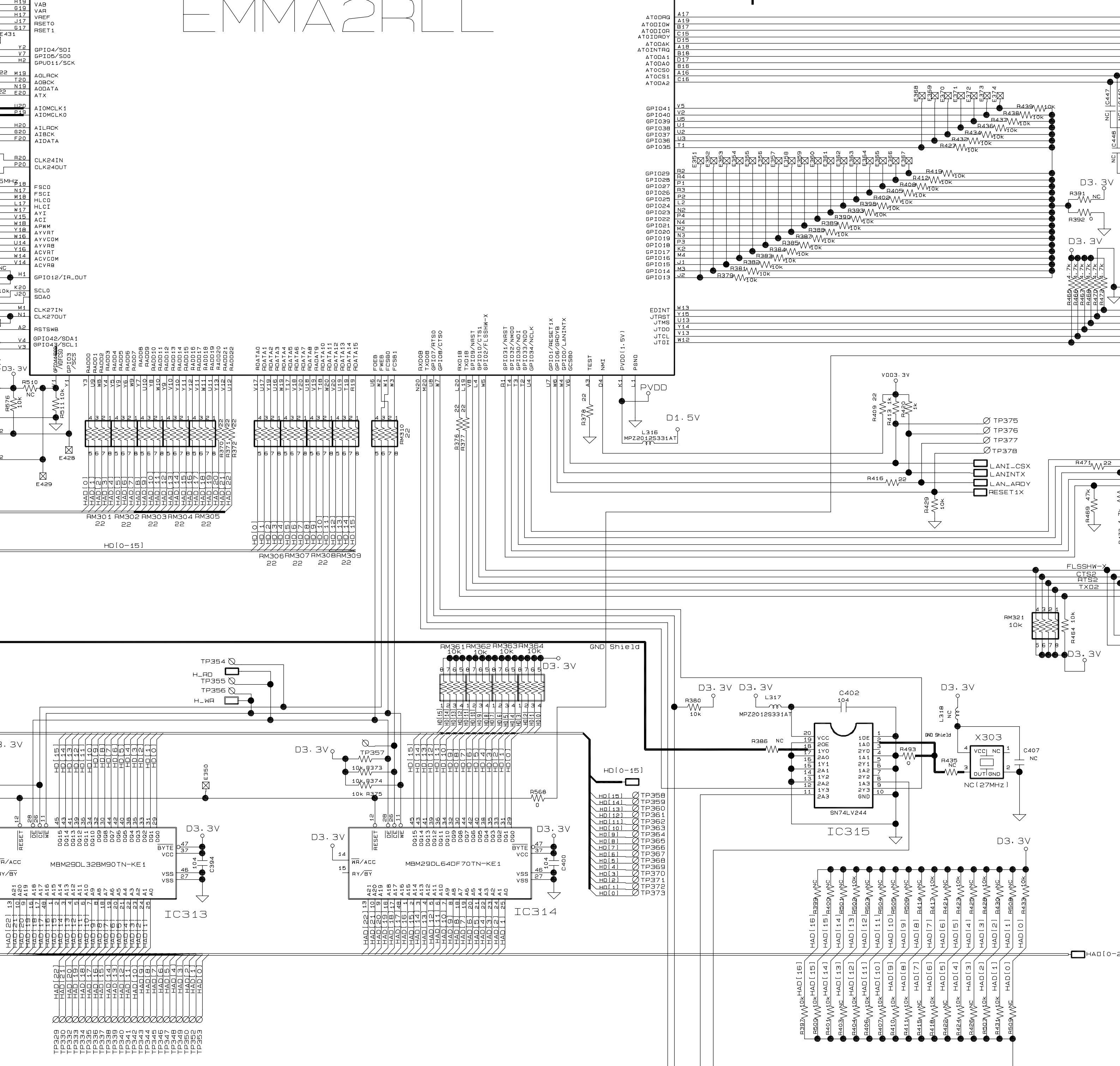

5
6
DDR2.5V
IC312
256M_DDR_SDRAM
IC311
256M_DDR_SDRAM
DDR_VREF
DDR_ADD[0-14]
DDR_DQ[0-31]
VDD2.5V
D3.3V
VDD1.5V
VDD3.3V
TP331
TP351
TP374
EMMA2RLL


R479 33
C418 NC
C420 NC
C422 NC
C417 NC
C419 NC
C421 NC
C423 NC
RM334 33
RM333 33
RM332 33
RM331 33
B_DD[15]
B_DD[14]
B_DD[13]
B_DD[12]
B_DD[11]
B_DD[10]
B_DD[9]
B_DD[8]
B_DD[7]
B_DD[6]
B_DD[5]
B_DD[4]
B_DD[3]
B_DD[2]
B_DD[1]
B_DD[0]
B_DD[0-15]
E406
E407
E408
E409
E410
E411
E412
E413
E414
E415
E416
E417
E418
E419
E420
E421
E422
E394
CN307
B_DRESET
B_DD[7]
B_DD[6]
B_DD[5]
B_DD[4]
B_DD[3]
B_DD[2]
B_DD[1]
B_DD[0]
B_DD[8]
B_DD[9]
B_DD[10]
B_DD[11]
B_DD[12]
B_DD[13]
B_DD[14]
B_DD[15]
B_DMAREQ
B_DIOW
B_DIOR
B_IORDY
B_DMACK
B_INTRQ
R481 NC
R482 NC
R483 82
R484 22
R487 22
R485 82
R488 22
R486 82


FROM MOTHER
CN301
14P
-/SC
CV/SY
V-GND
V-GND
A-GND
REC_LRCK
A-GND
REC_BCK
D-GND
REC_DATA
RTS(T-R)
CTS(R-T)
TXD(T-R)
RXD(R-T)
TIMER
E340
E338
E342
E339
R441
NC
E316
R348
NC
E341
R440
NC
E317
R347
NC
E343
E347
E345
E346
E344
E349
R442
0
R443
0
R304
150
R302
150
R303
150
R301
150
D
E
F
1
2



L302
15uH
L303
39uH
L304
L305
L301
MPZ2012S331AT
D5V
Q308
2SA1162Y
Q309
2SA1162Y
Q306
2SC2712Y
Q307
2SC2712Y
FL301
5KU-020001A
FL302
5KU-020001A
Case ground
TP301
TP302
TP303
TP304
TP305
TP306
TP307
TP308
TP309
TP310
TP311
TP312
TP313
GND Shield
GND
IC305
BR24L16F-WE2
IC306
SN74AHC1G08
IC307
PST594JMT
X302
24.576MHz
X304
27MHz
D3.3V
C304
10uF16V
C317
10uF16V
R458 MMZ1608D241CT
R459 MMZ1608D241CT
3
4


EMMA2RLL
IC313
MBM29DL328M90TN-KE1
IC314
MBM29DL640F70TN-KE1
IC315
SN74LV244
X303
NC(27MHz)
RM301 RM302 RM303 RM304 RM305
RM306 RM307 RM308 RM309
RM361 RM362 RM363 RM364
HD[0-15]
GND Shield
D3.3V
D1.5V
PVDD
MPZ2012S331AT
LANI_CSX
LANINTX
LAN_ARDY
RESET1X
FLSSHW-X
CTS2
RTS2
TXD2
RM321
H_RD
H_WR
5
6

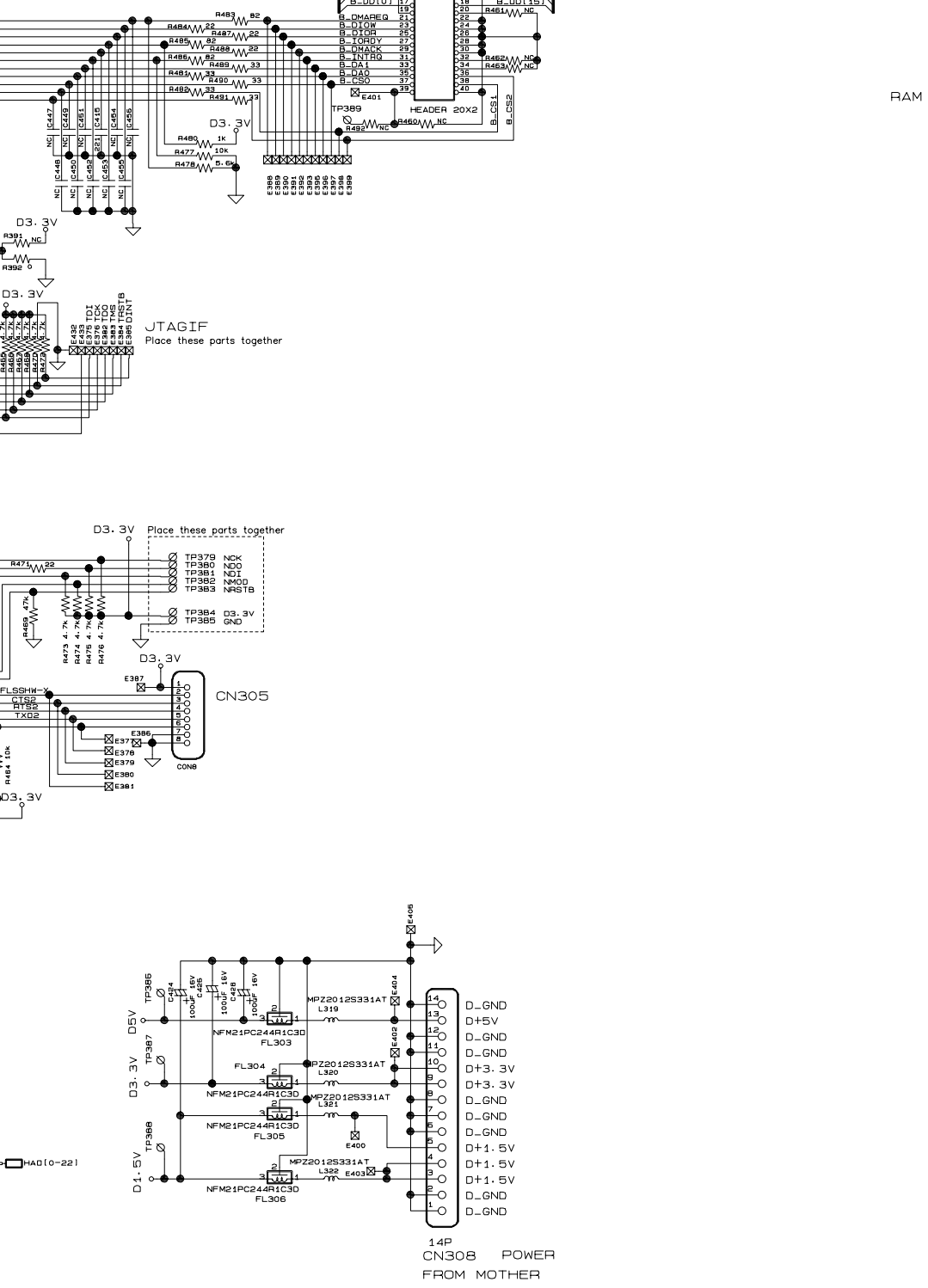

RAM
HEADER 20X2
JTAGIF
Place these parts together
CN305
CON8
D3.3V
D5V
D1.5V
D_GND
D+5V
D+3.3V
D+1.5V
14P
CN308 POWER
FROM MOTHER

Fig. 3-4-6

4-4. Mother Circuit Diagram

4-4-1. Tuner Circuit Diagram

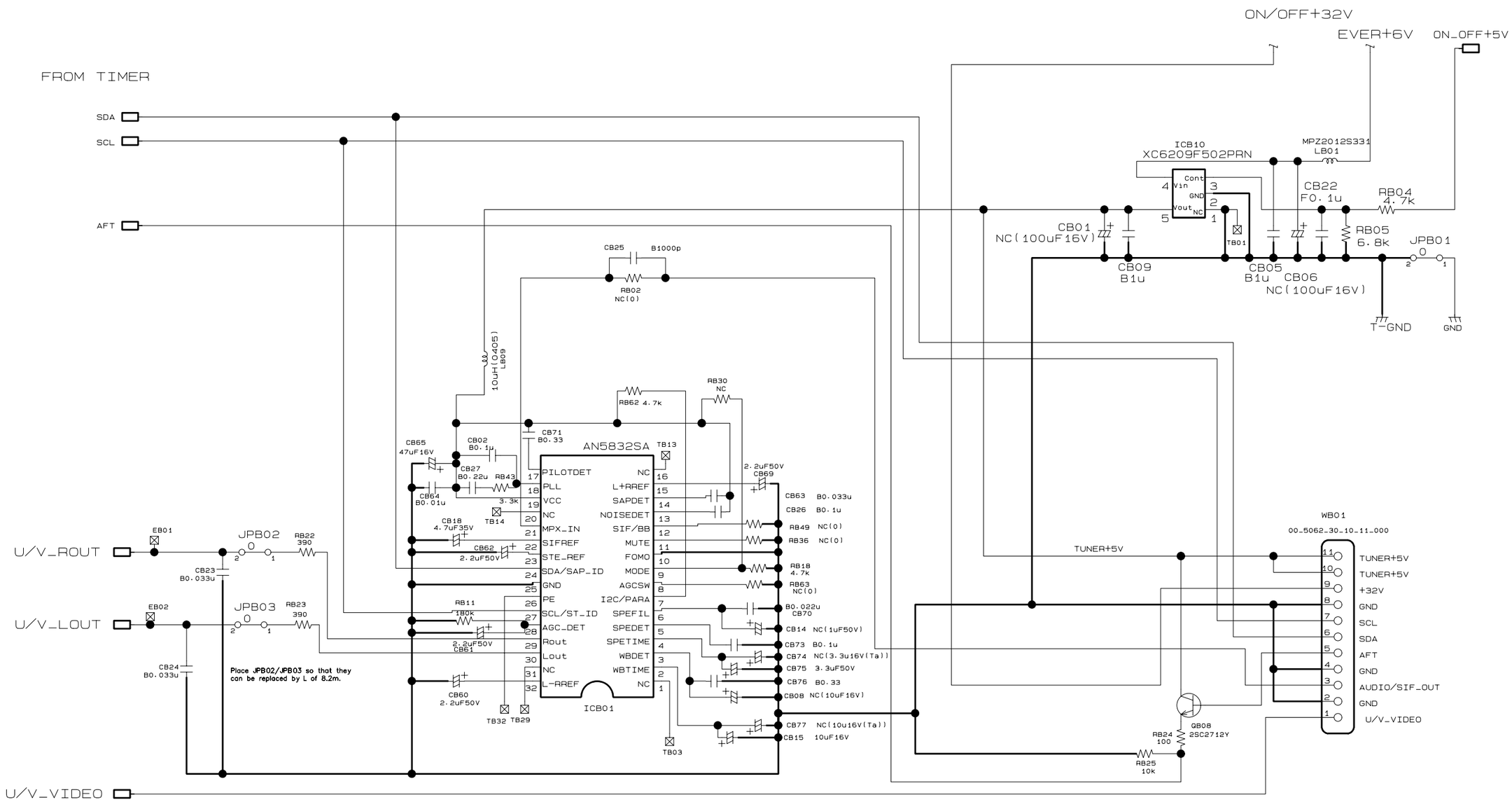


Fig. 3-4-7

A B C D E F G

4-4-2. Timer Circuit Diagram

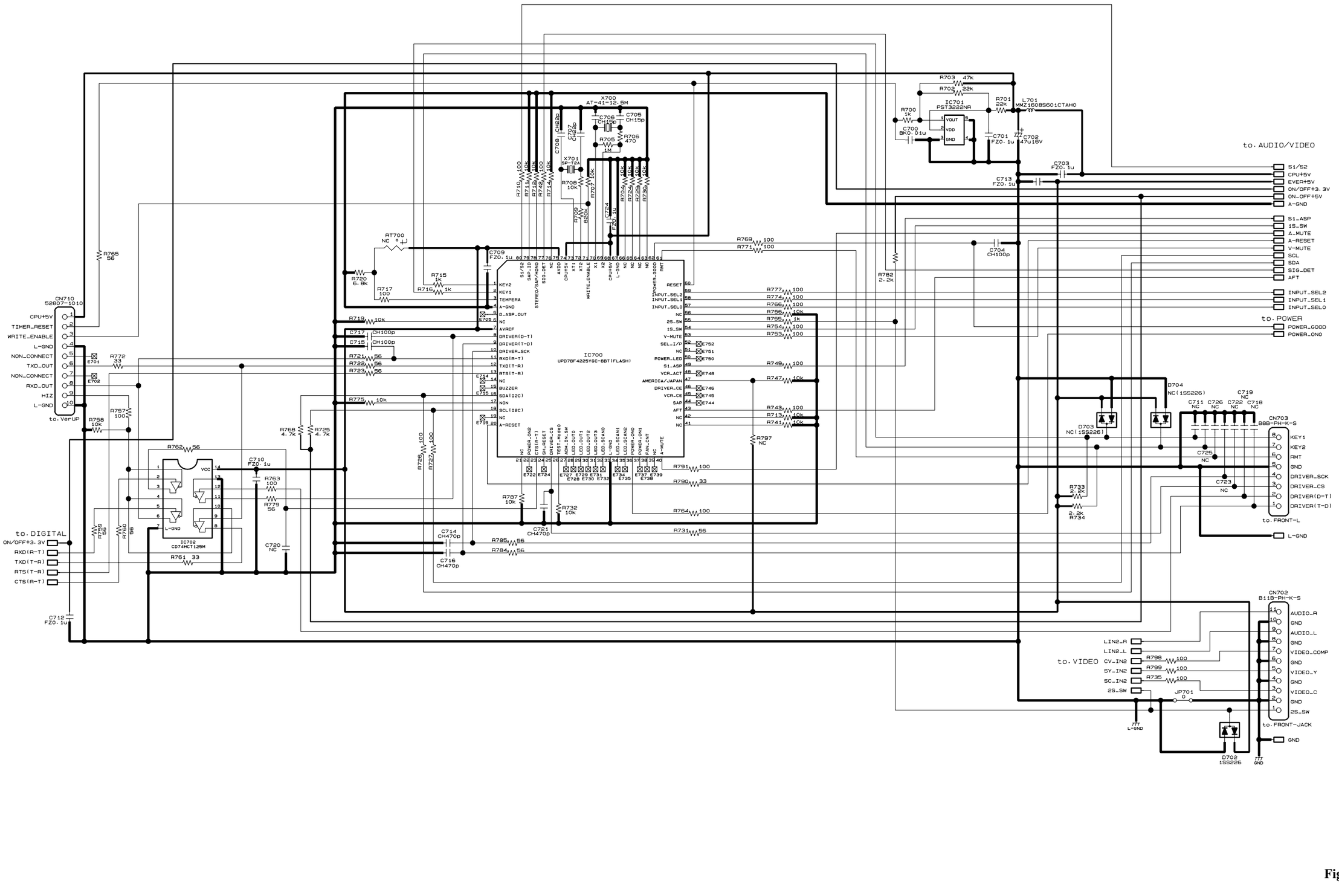


Fig. 3-4-8

4-4-3. Audio Circuit Diagram

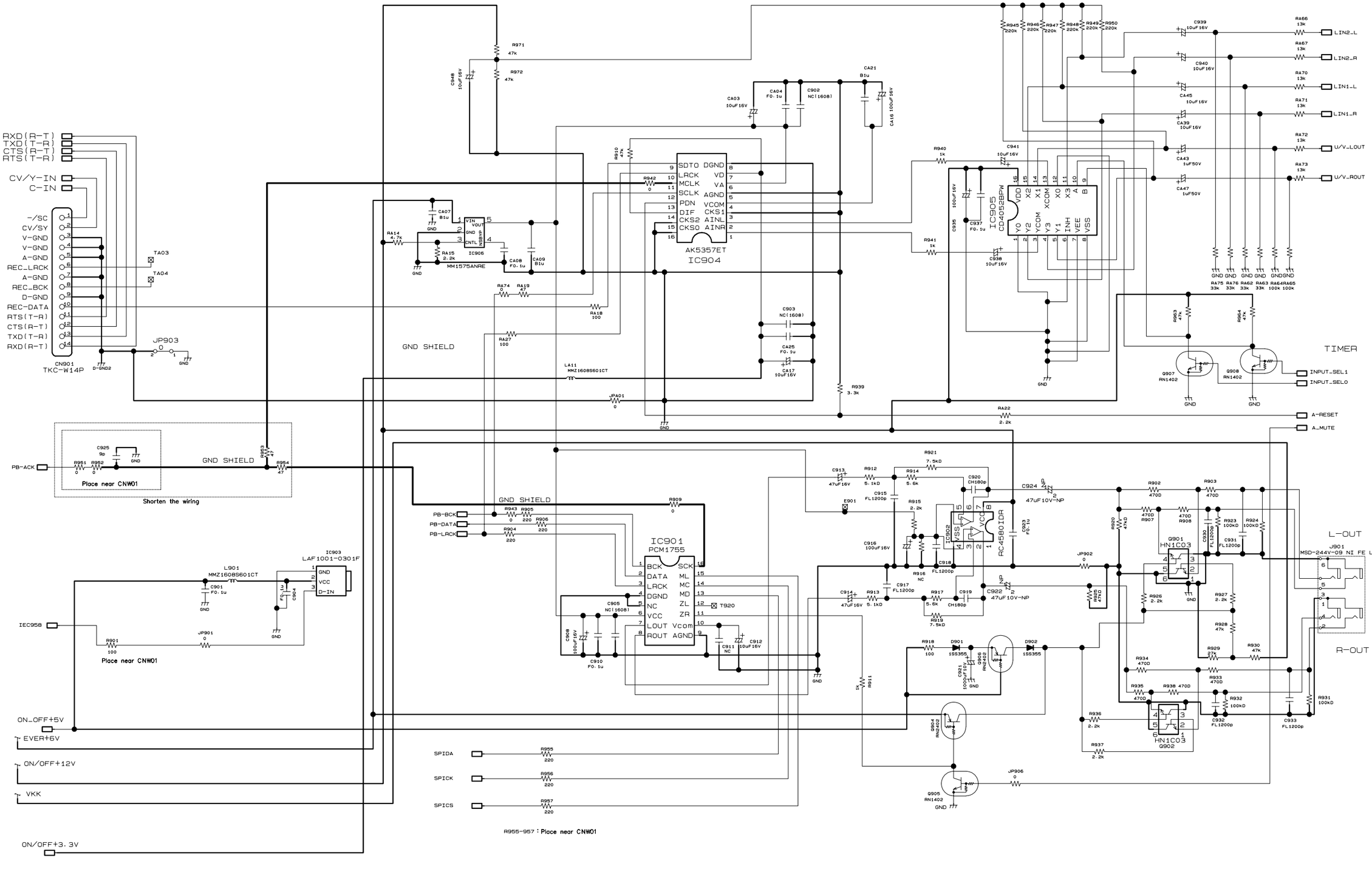


Fig. 3-4-9

A B C D E F G

4-4-4. Video Circuit Diagram

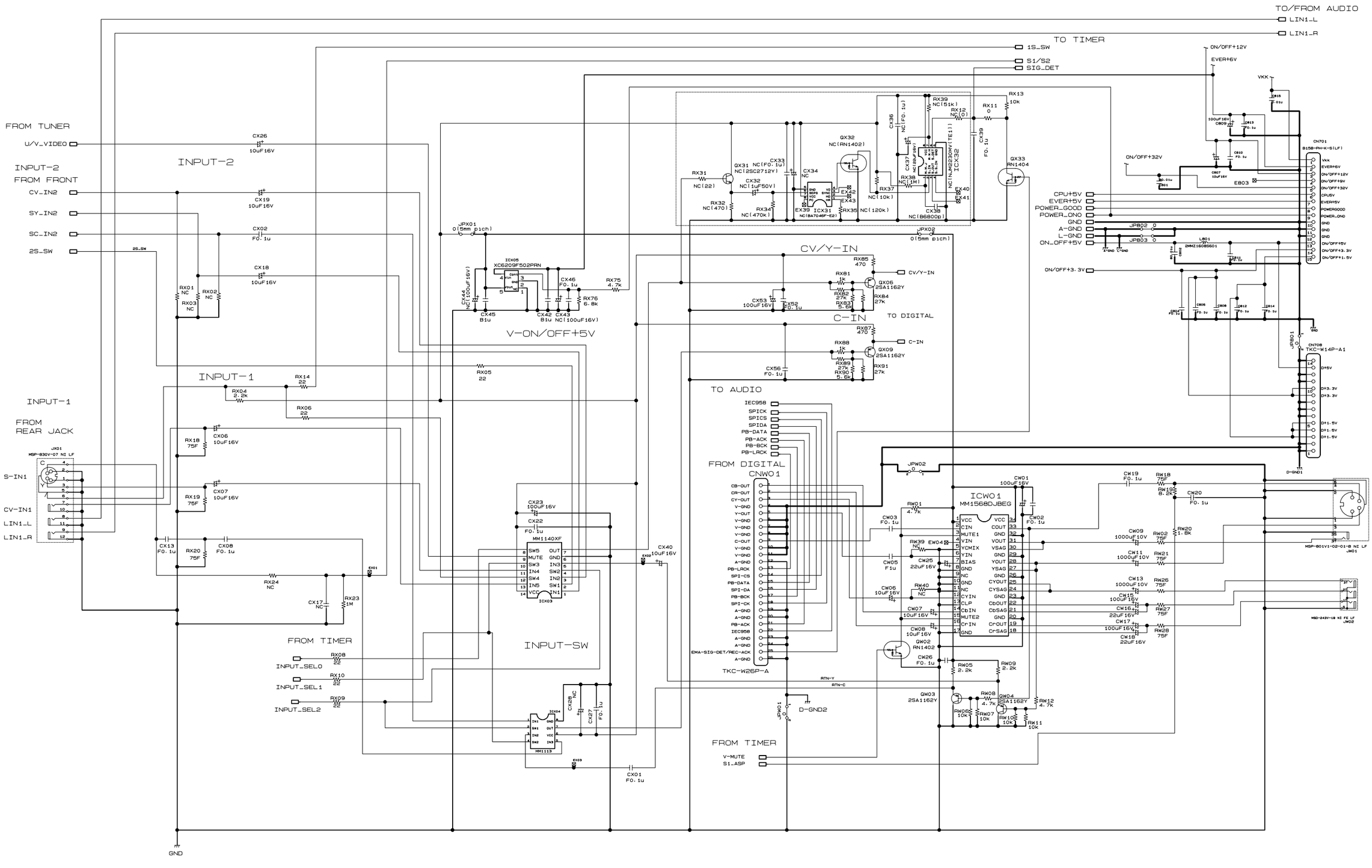


Fig. 3-4-10

4-5. Tuner Unit Circuit Diagram

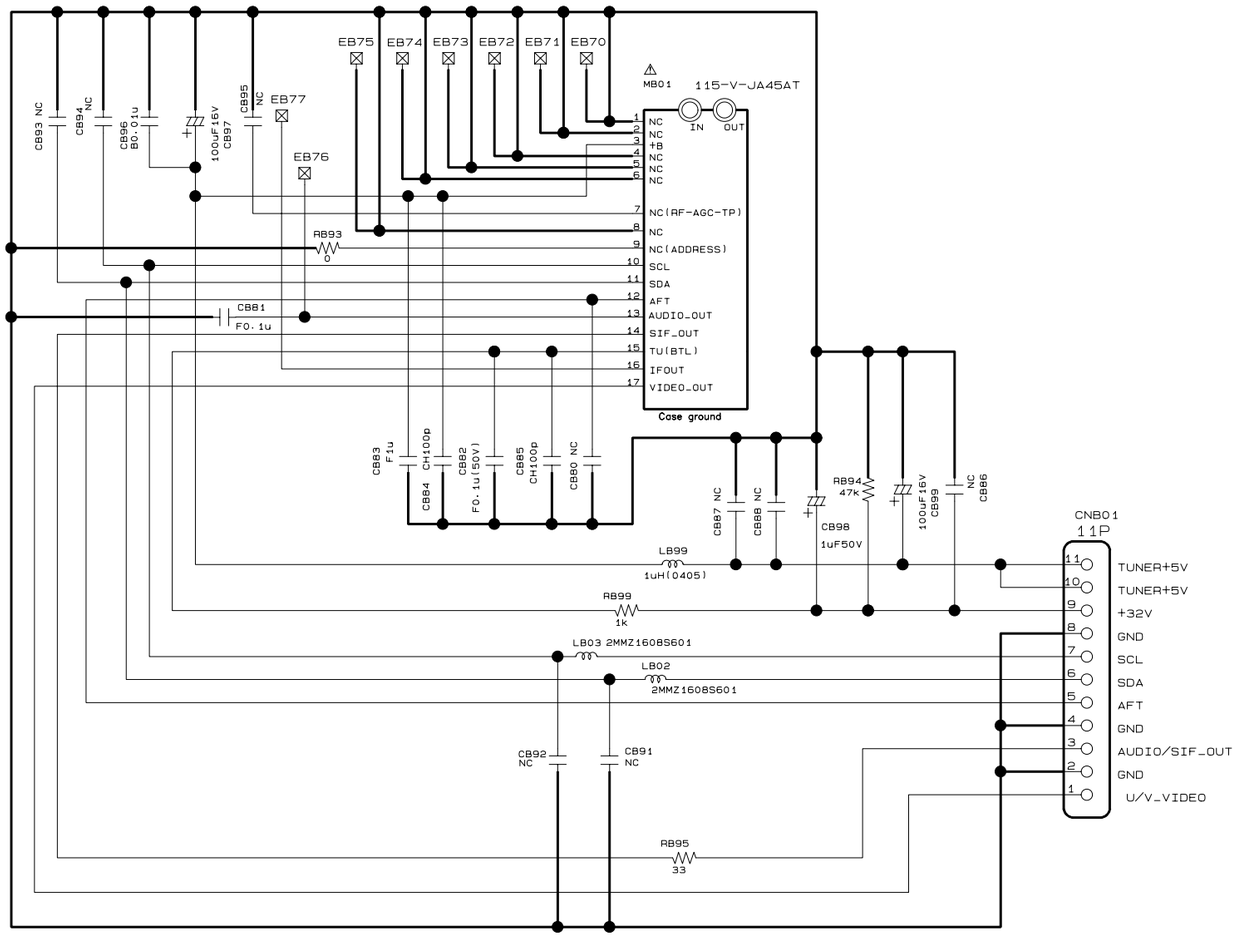


Fig. 3-4-11

5. PC BOARDS

5-1. Front Jack PC Board

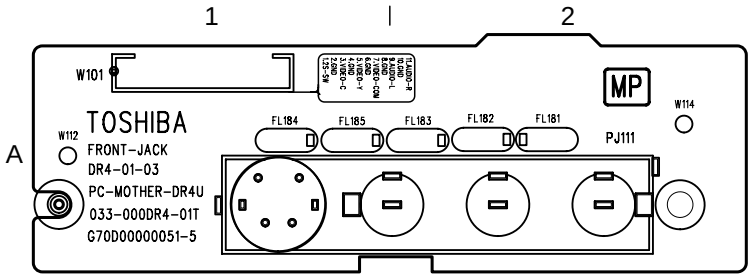


Fig. 3-5-1 EU55 Front Jack PC Broad (Top side)

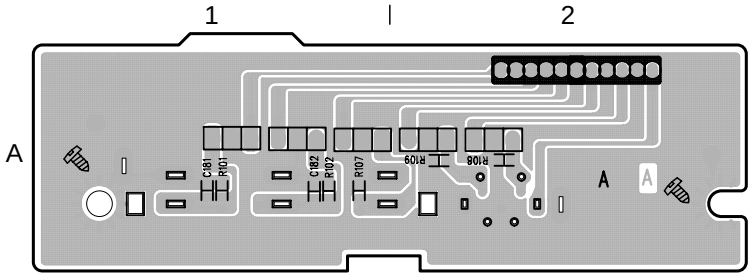


Fig. 3-5-2 EU55 Front Jack PC Broad (Bottom side)

5-2. Front (LED) PC Board

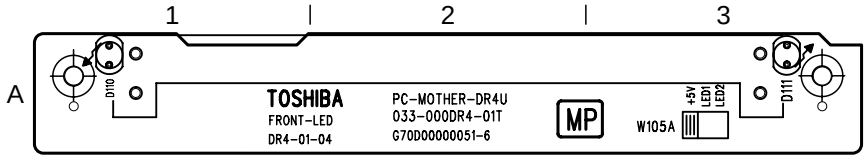


Fig. 3-5-3 EU56 Front (LED) PC Broad (Top side)

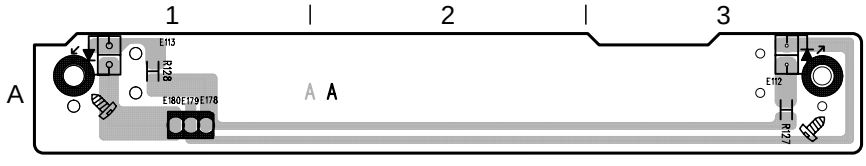


Fig. 3-5-4 EU56 Front (LED) PC Broad (Bottom side)

5-3. Front (L) PC Board

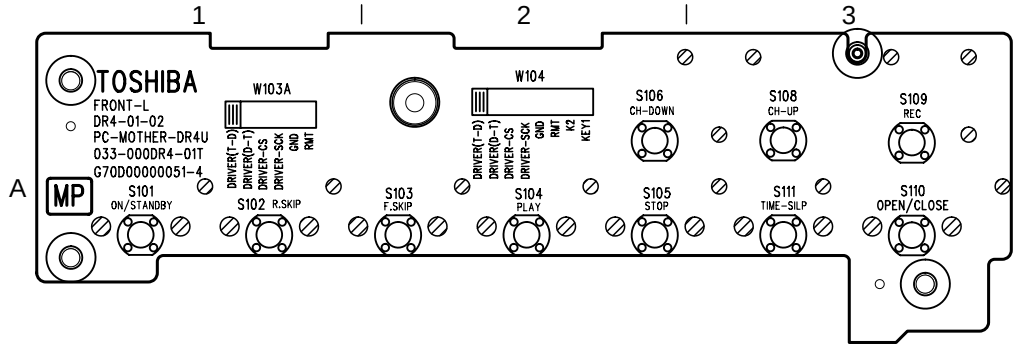


Fig. 3-5-5 EU03B Front (L) PC Broad (Top side)

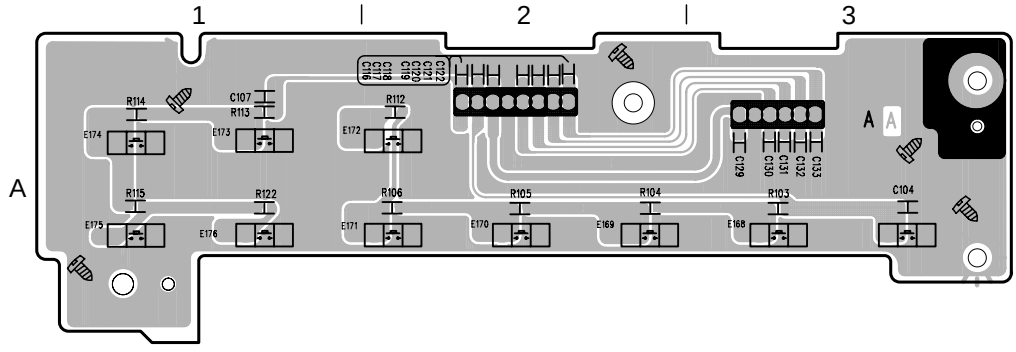


Fig. 3-5-6 EU03B Front (L) PC Broad (Bottom side)

5-4. Front (R) PC Board

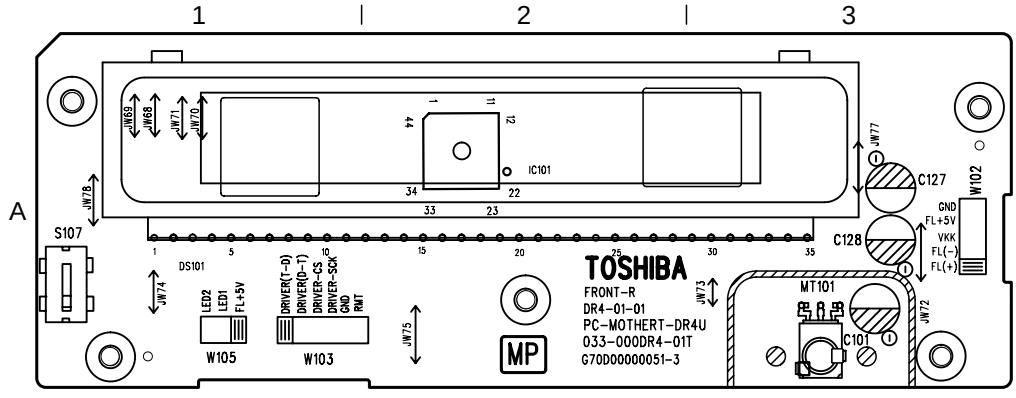


Fig. 3-5-7 EU03A Front (R) PC Broad (Top side)

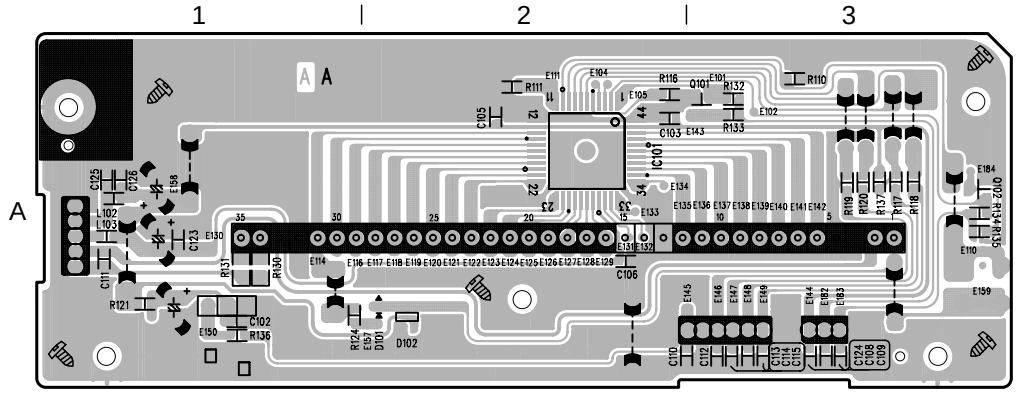


Fig. 3-5-8 EU03A Front (R) PC Broad (Bottom side)

5-5. Tuner Unit PC Board

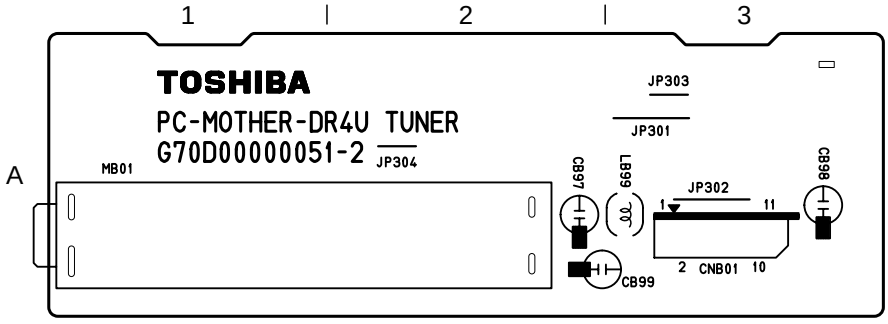


Fig. 3-5-9 EU05A Tuner Unit PC Broad (Top side)

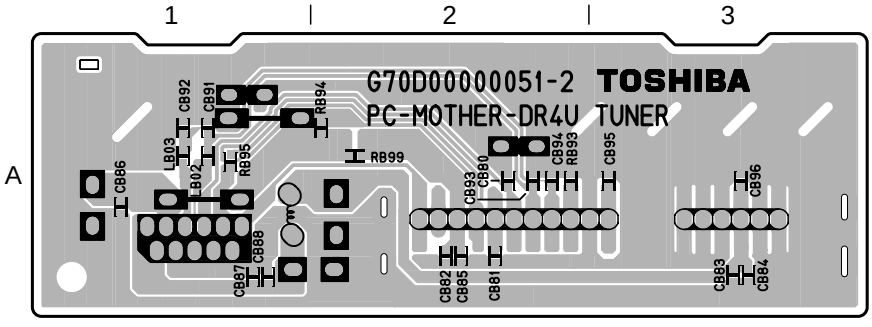


Fig. 3-5-10 EU05A Tuner Unit PC Broad (Bottom side)

5-6. Digital PC Board

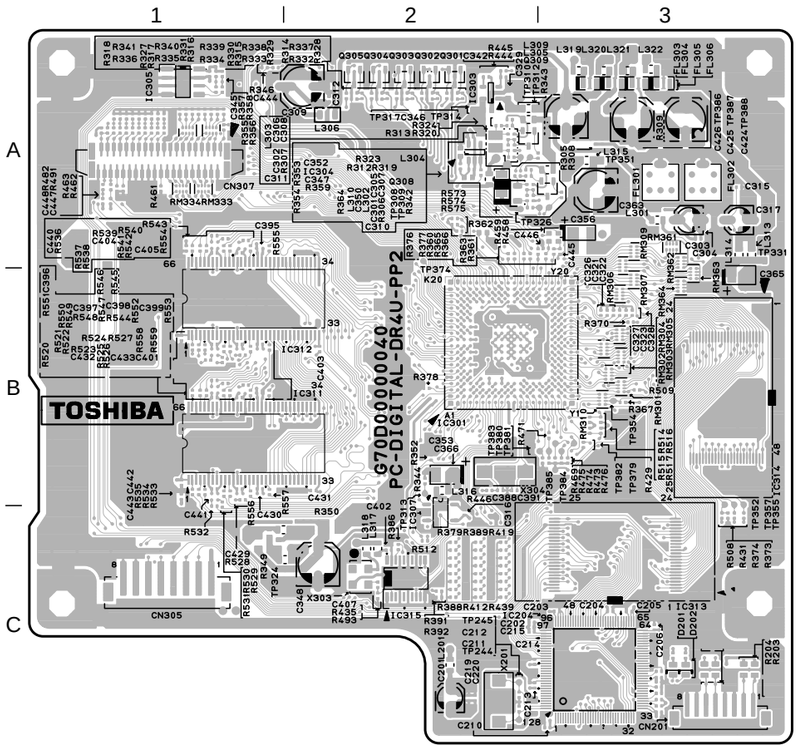


Fig. 3-5-11 EU01 Digital PC Board (Top side)

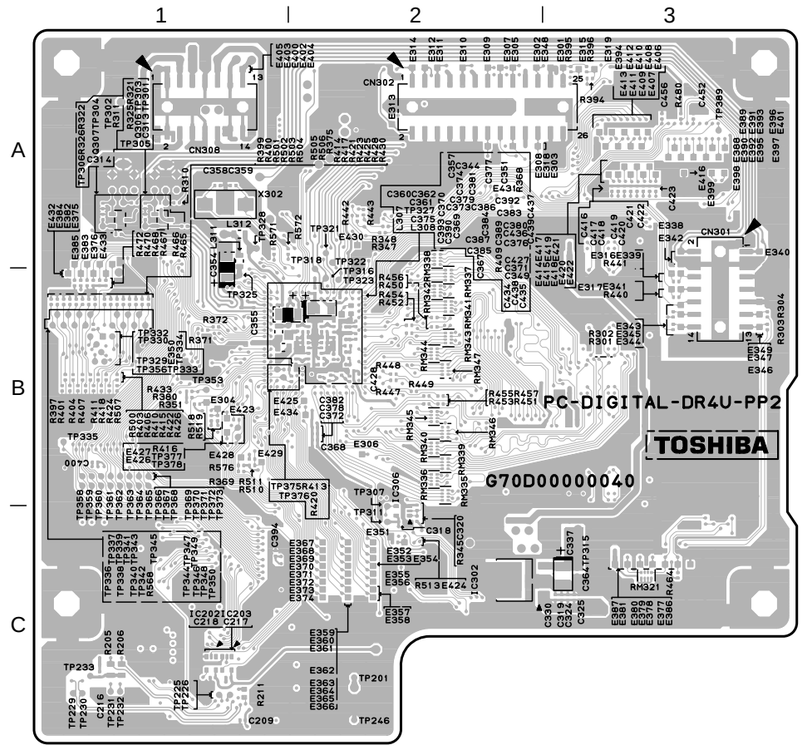


Fig. 3-5-12 EU01 Digital PC Board (Bottom side)

5-7. Mother PC Board

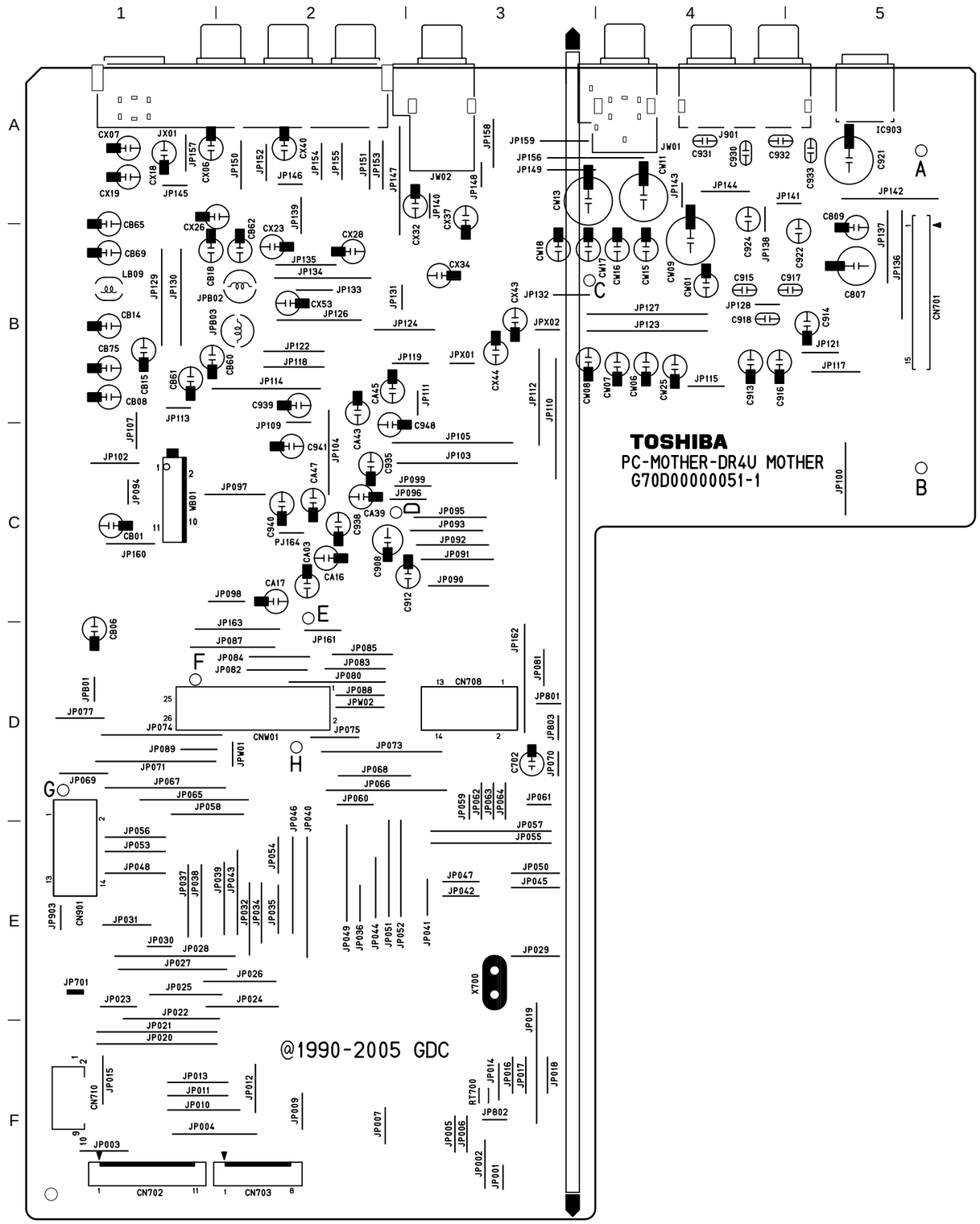


Fig. 3-5-13 EU05 Mother PC Board (Top side)

Fig. 3-5-14 EU05 Mother PC Board (Bottom side)

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN